



EXPERIMENTAL STUDY OF THE TURBULENT MIXING OF SUBSONIC AXISYMMETRIC GAS STREAMS

D. E. Chriss
ARO, Inc.

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FOREWORD

The work reported herein was sponsored by the USAF Office of Aerospace Research and the Arnold Engineering Development Center (AEDC), Air Force Systems Command (AFSC), Arnold Air Force Station, Tennessee, under Program Element 6144501F, Project 6952, Task 695202.

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This material has been accepted by the University of Tennessee Space Institute as partial fulfillment of the requirements for the degree of Master of Science.

This technical report has been reviewed and is approved.

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ABSTRACT

An experimental study of the turbulent mixing of subsonic axisymmetric gas streams was conducted. Hydrogen-air and air-air mixing systems were studied, and the velocity ratio (jet velocity/outer stream velocity) was varied from 2.4 to 6.3. Special emphasis is placed on (1) the centerline decay and radial profile shapes of composition, velocity, and total enthalpy and (2) the relationships between the turbulent transport of mass, momentum, and energy. The major conclusions drawn for this particular set of conditions are (1) for the hydrogen-air system the centerline decay decreases with increasing velocity ratio, (2) profile similarity of composition, velocity, and total enthalpy is a valid assumption, (3) there is a definite relationship between the transport of momentum and energy which is not compatible with a constant Prandtl number, and (4) unity Lewis number is a valid assumption. The experimental data obtained are tabulated for the benefit of other investigators.

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NOMENCLATURE

b	Mixing zone width
\bar{C}	Hydrogen mass fraction
C_p	Specific heat at constant pressure
D	Inner nozzle diameter
H	Enthalpy
H_a	Enthalpy of air
H_h	Enthalpy of hydrogen
k	Constant in Prandtl eddy viscosity model
M	Mach number
P	Pressure
P_b	Barometric pressure
P_{TH}	Total pressure in the inner plenum
Pr	Prandtl number
R	Radius
R^*	Radius of control volume
\bar{R}	Universal gas constant
$R_{.1}$	Radius at which $u = 0.1 (u_c - u_o) + u_o$
$R_{.9}$	Radius at which $u = 0.9 (u_c - u_o) + u_o$
R_B	$\frac{R - R_{.9}}{R_{.1} - R_{.9}}$
R_i	Radius of the potential core
R_{mc}	Radius at which $C = 0.5 C_c$
R_{mu}	Radius at which $u = 0.5 (u_c - u_o) + u_o$
R_o	Radius of the inner nozzle
T	Temperature
T_{TH}	Total temperature in the inner plenum
u	Velocity in the axial direction
u_{max}	Maximum velocity in Prandtl eddy viscosity model

u_{\min}	Minimum velocity in Prandtl eddy viscosity model
v	Velocity in the radial direction
\dot{W}	Hydrogen mass flow rate from mass balance
\dot{W}_j	Hydrogen mass flow rate from metering orifice measurement
x	Axial distance
x_o	Potential core length
x_{oc}	Potential core length from composition
x_{ou}	Potential core length from velocity
γ	Ratio of specific heats
Δ	Combined boundary-layer thickness
ϵ	Eddy viscosity
λ	Mass flux ratio, $\rho_j u_j / \rho_o u_o$
ρ	Density
ϕ_H	$\frac{H - H_o}{H_j - H_o}$
ϕ_u	$\frac{u - u_o}{u_j - u_o}$
ψ_u	$\frac{u - u_o}{u_c - u_o}$
ω	Molecular weight

SUBSCRIPTS

c	Centerline
j	Jet
o	Outer stream
s	Static
t	Total

SECTION I INTRODUCTION

The turbulent mixing between high-speed coaxial streams is of primary importance in many engineering devices, such as jet pumps, ejectors, and ramjet combustors. The flow in these devices must at best be analyzed by semiempirical techniques because there is no fundamental and complete theory for turbulent flows. Numerous investigations of the turbulent mixing process have been conducted, but they have failed to produce a generalized theory. The main reason for the lack of success in solving this problem is that the turbulent transport properties are a function of the fluid dynamics of the flow system.

The case of a single jet mixing with a quiescent medium has been given considerable attention by a number of investigators. Most of these studies were limited to incompressible flow, and the results are well covered by Schlichting (Ref. 1) and Pai (Ref. 2). One of the first investigations of the case of two coaxial streams mixing together was conducted by Forstall and Shapiro (Ref. 3). An inner stream composed of air with ten percent by volume of helium as a tracer was mixed with an outer stream of air. The gas velocities were in the low subsonic range, and the temperatures were maintained nearly equal. The main conclusions were that (1) momentum is transported less rapidly than mass and (2) the normalized velocity and composition profiles exhibit shape similarity; that is, the nondimensional radial profiles are invariant with axial distance.

Alpinieri (Ref. 4) obtained experimental data on the turbulent mixing between carbon dioxide and hydrogen central jets exhausting into a moving concentric stream of air. The flow velocities were in the low to high subsonic range, and the temperatures of the streams were approximately equal. Radial and axial distributions of composition and velocity were presented. Alpinieri verified Forstall and Shapiro's conclusion that mass is transported more readily than momentum. Also, Alpinieri concluded that the mixing rate does not approach zero when either the velocities or the mass fluxes of the stream are equal. Conclusions contrary to this were suggested by turbulent eddy viscosity models proposed by other investigators such as Prandtl as presented by Schlichting (Ref. 1) and Ferri (Ref. 5). The eddy viscosity models in question are as follows:

1. Eddy viscosity model proposed by Prandtl

$$\epsilon = kb(u_{\max} - u_{\min})$$

2. Eddy viscosity model proposed by Ferri

$$\epsilon = \frac{kb}{\rho} (\rho_o u_o - \rho_c u_c)$$

Zakkay and others (Ref. 6) conducted an experimental investigation to determine the turbulent transport coefficients for hydrogen-, helium-, and argon-air mixing systems. Central jets of hydrogen, helium, and argon at subsonic velocities were injected into an outer stream of air maintained at a constant Mach number of 1.6. The ratio of the inner jet velocity to the outer stream velocity for the hydrogen-air mixing system was varied from 0.768 to 2.42. In addition to turbulent transport coefficients, centerline decay of velocity and composition was presented. A comparison between Zakkay's results and results from the current investigation is given in Section 3.3.

1.1 OBJECTIVE AND JUSTIFICATION

The objective of this experimental investigation was to document the turbulent mixing of subsonic axisymmetric hydrogen and air streams at velocity ratios which have not been previously reported. This is part of a more extensive investigation of turbulent mixing systems. The objective of the overall investigation is to develop empirical data on free turbulent flows over a broad range of conditions, so that more perceptive semiempirical theories can be developed. Special emphasis is placed on (1) determining the effect of velocity ratio and density gradients on the centerline decay of composition, velocity, and total enthalpy, and on the composition, velocity, and total enthalpy profile shapes, and (2) presenting nondimensional composition, velocity, and total enthalpy relationships which are indicative of the turbulent Prandtl, Lewis, and Schmidt numbers.

Integral techniques for solving turbulent mixing problems (Refs. 7 and 8) employ the assumption that composition, velocity, and total enthalpy profiles exhibit shape similarity. Forstall and Shapiro (Ref. 3) listed the following relationships as being representative of their velocity profile shapes:

Cosine curve

$$\frac{u - u_o}{u_c - u_o} = \frac{1}{2} \left(1 + \cos \frac{\pi R}{2 R_{mu}} \right)$$

Three-halves power curve

$$\frac{u - u_o}{u_c - u_o} = \left[1 - 0.293 (R/R_{mu})^{3/2} \right]^2$$

and error curve

$$\frac{u - u_o}{u_c - u_o} = \left[\frac{1}{2} \right]^{(R/R_{mu})^2}$$

If profile shape similarity is a valid assumption, a representative profile curve, the centerline and outer stream velocities, and a characteristic width are sufficient to determine the radial velocity distribution at any axial location.

In most proposed methods for solving turbulent mixing problems, the turbulent Prandtl and Lewis numbers are assumed to be unity to simplify the mathematical procedure. If the Prandtl and Lewis numbers are unity, the Schmidt number must be unity by definition. If the Prandtl and Lewis numbers are unity and the laminar transport coefficients are replaced by the corresponding turbulent values, the boundary-layer equations for axisymmetric flow may be written as follows:

Momentum equation,

$$\rho u \frac{\partial u}{\partial x} + \rho v \frac{\partial u}{\partial R} = \frac{1}{R} \frac{\partial}{\partial R} \left(\rho \epsilon R \frac{\partial u}{\partial R} \right) - \frac{\partial P}{\partial x} \quad (1)$$

Energy equation,

$$\rho u \frac{\partial H}{\partial x} + \rho v \frac{\partial H}{\partial R} = \frac{1}{R} \frac{\partial}{\partial R} \left(\rho \epsilon R \frac{\partial H}{\partial R} \right) \quad (2)$$

Conservation of elemental species,

$$\rho u \frac{\partial C}{\partial x} + \rho v \frac{\partial C}{\partial R} = \frac{1}{R} \frac{\partial}{\partial R} \left(\rho \epsilon R \frac{\partial C}{\partial R} \right) \quad (3)$$

and

Global continuity equation,

$$\frac{\partial (\rho u)}{\partial x} + \frac{1}{R} \frac{\partial (\rho v R)}{\partial R} = 0 \quad (4)$$

For the case of constant pressure mixing of an initially uniform infinite stream, the $\partial P / \partial x$ term in Eq. (1) is zero, and Eqs. (1), (2), and (3) are identical in form. If the reference conditions are constant and the boundary conditions are similar, a linear relation may be obtained between the variables u , H , and C :

$$\frac{u - u_o}{u_j - u_o} = \frac{H - H_o}{H_j - H_o} = \frac{C - C_o}{C_j - C_o} \quad (5)$$

The experimental relationships between the terms of Eq. (5) are presented in this investigation as being indicative of the Prandtl and Lewis number variation.

1.2 APPROACH

In general, turbulent mixing is influenced by the following factors:

1. Velocity ratio between the streams,
2. Density gradients in the mixing region,
3. Axial and radial static pressure gradients, and
4. Initial boundary-layer and free-stream turbulence level.

The approach which has been taken in this investigation is to reduce the effect of initial boundary-layer and static pressure gradients and to concentrate on the effects of velocity ratio and the density field. The initial boundary-layer effect was reduced by designing the nozzle to minimize the boundary-layer thickness at the entrance to the test section. The initial boundary-layer results are discussed in Section 3.6. The static pressure variation was minimized by exhausting to atmosphere as a free jet and maintaining the flows subsonic so that shock waves were not formed. However, the static pressure in the mixing region was measured, and the gradients near the nozzle exit were larger than anticipated. Static pressure data are presented in Section 3.7.

Hydrogen-air and air-air turbulent mixing systems were investigated. The hydrogen-air system was chosen to provide a system with very large density gradients. Also, the high speed of sound of hydrogen makes it possible to attain high velocities while the Mach numbers remain subsonic. Furthermore, hydrogen-air mixtures are frequently used in combustion processes, and the results should be useful when chemically reactive systems are investigated. The air-air system is studied because it provides a system with small density gradients to use for comparison with the high density gradient system.

The approach of this investigation required that a large amount of experimental data be obtained. The experimental measurements are time-mean average values because techniques for measuring the fluctuating quantities are not well developed, especially in the high velocity region.

SECTION II APPARATUS AND PROCEDURE

2.1 FREE-JET MIXING TEST CELL

A schematic diagram of the free-jet mixing test cell is shown in Fig. 1 (Appendix I). Air, which may be heated to 1500°R by an

indirect-fired heater, flows around the inner plenum and nozzle. It then passes through a 3.5-in. -diam subsonic nozzle to form an annulus around the subsonic flow from the inner nozzle. The inner nozzle diameter is 0.5 in., and the thickness of the trailing edge is 0.005 in. The inner nozzle and outer nozzle configuration was designed to produce as small an initial boundary layer at the entrance to the test section as practical. The inner and outer nozzles were aligned to give flow with centerlines which are parallel within less than 0.5 deg. The alignment was checked by means of total pressure measurements in the downstream flow field. The test section is open to the atmosphere, but the gases from the nozzle are removed by a downstream scoop attached to the RTF exhaust system.

2.2 INSTRUMENTATION

A Systems Engineering Laboratory (SEL) 600 data acquisition system was used to record all of the data in millivolts on magnetic tape. The temperatures were measured with copper-constantan and iron-constantan thermocouples, and the pressures were measured with strain-gage-type transducers. The gas composition was measured with a fluid oscillator, which was developed by the RTF Research Branch (Ref. 9). The probe positions were indicated by wire-wound potentiometers mechanically connected to the probe, and the inner stream flow rate was measured with a calibrated choked orifice. Estimates of the accuracy of the measured parameters are presented in Appendix III.

A dual-probe arrangement was used to measure the total pressure, total temperature, gas composition, and static pressure at various stations throughout the flow field. A photograph and a sketch of the dual-probe arrangement are shown in Fig. 2, and a schematic diagram of the probe-related components is shown in Fig. 3. The probe used to measure total pressure, total temperature, and gas composition is operated in two modes. Total temperature and gas composition are recorded on one mode when the probe is aspirated to a vacuum source, and total pressure is recorded on the other mode when there is no flow through the probe. Static pressure is recorded during both modes of operation. The static pressure measurements as recorded are displaced 0.5 in. to one side of the total pressure probe measurements. They are shifted in the data reduction program to align with the total pressure probe measurements.

The dual-probe arrangement is actuated in the flow field by a three-position probe actuator. The probe location and the initial test conditions were monitored on an X-Y-Y plotter and strip-chart recorders.

2.3 TESTING PROCEDURE

In-place calibrations were made on all of the pressure transducers and potentiometers before each test. The temperature channels were calibrated by applying two different millivolt levels. Next, the test conditions were established by setting the total pressure in the inner and outer plenums and the total temperature of the outer airstream. The conditions were allowed to stabilize, and then the probe was set on the vertical centerline of the flow field by the following procedure: The probe was located on the approximate horizontal centerline of the jet by using the peak of the horizontal total pressure profile. Then the probe was moved axially to the decaying region of the jet and actuated vertically. The vertical centerline was taken to be the location of maximum pressure if the jet total pressure was greater than the outer stream total pressure or the minimum pressure if the jet total pressure was below the outer stream pressure. ..

The data were recorded by a data acquisition system which is operated in the following manner: The probe is traversed radially at a fixed axial location until the desired radial location is reached. A single switch starts a sequence which stops the probe and begins to record each data item 300 times per second. The probe is put into the total temperature and gas composition mode of operation, then into the total pressure mode. The time in each mode of operation is indicated by a function signal switch recorded on magnetic tape. The magnetic tape drive is stopped automatically when all data at the radial location have been recorded. The probe drive is engaged automatically to traverse the probe to the next radial data point location selected by the test conductor. The total time required to obtain a data point in a radial survey is approximately 5 sec. After data points have been recorded to give complete profiles at a given axial location, the radial traverse of the probe is stopped, and the probe is moved to another axial location where the next radial profile is obtained.

2.4 DATA REDUCTION PROCEDURE

The data are reduced in three steps with the aid of a digital computer. First, the magnetic tape from the SEL 600 tape system is processed through a data reduction program which uses the calibrations to convert the millivolt signals to engineering units of pressure, temperature, and probe position. The data are averaged over 0.167-sec intervals (50 scans) to obtain the mean values. The data recorded during stabilization of the parameters were discarded. A printout and a tape are made of the resulting engineering units data.

Second, the engineering units tape is reduced by computer to give gas mixture properties at each probe position. The properties obtained are composition, density, velocity, and total enthalpy at the initial stream conditions and at local points in the flow field. The methods of calculating the specific properties are given in Appendix IV. These basic properties are recorded on the tape to be used as the inputs for the final reduction program. The method by which the data are further reduced may change as the knowledge of turbulent mixing increases. For this reason, the basic properties tape is stored so that other methods of data reduction may be applied to it in the future.

Finally, the basic properties tape is reduced to provide profiles of nondimensionalized velocity, composition, and total enthalpy as well as relationships between the transport of mass, momentum, and energy. Also, a hydrogen mass balance is made at each axial station recorded by integrating the hydrogen mass flux ($\rho u C$) over the radial distance to a control volume outside the mixing zone. The mass balance is compared with the hydrogen flow measured with a calibrated choked orifice to give a consistency check. The results of the consistency check are given in Appendix V.

SECTION III DISCUSSION OF RESULTS

3.1 FLOW FIELD DESCRIPTION

The jet gas and the outer stream gas mix in the inner mixing zone as shown schematically in Fig. 4. For all cases investigated, the jet gas used was either hydrogen or air at ambient temperature. Only regimes I and II are considered in this investigation. In regime III, the conditions in the outer stream are a function of the outer stream mixing with the surrounding quiescent air. This provides a problem with different boundary conditions from the problem under consideration. The inner potential core length varies with the test conditions. The inner potential core is defined as the region in which the composition and velocity are constant and equal to the inner nozzle exit conditions.

3.2 EXPERIMENTAL DATA

Experimental data were obtained for nine different test conditions. The velocities, total pressures, and total temperatures for these tests are tabulated in Table I (Appendix II). These data are divided into three

test series. Series I and II are hydrogen-air mixing tests. For the first five test conditions (Series I), the total pressure of the two streams was set to give a range of velocity ratios from 2.4 to 6.3. In Series II, the next three test conditions, the outer stream temperature was raised from 650 to 1050°R. The total pressures were varied to give velocity ratios from 2.5 to 4.6. Series III, the last test condition, was an air-air mixing test at a velocity ratio of 2.4.

In the near field region* the gradients of composition, total pressure, static pressure, and total temperature were very large. Insufficient data were obtained to define the profiles adequately because the increment traveled between radial points was too large. For this reason, much of the data in this region is omitted from the results presented. The main difficulty in using the near field data is that the radial centerline of the flow cannot be accurately determined. The experimental centerline is determined by fitting the center portion of the composition distribution with an exponential curve and using the center of the exponential curve as the centerline of the flow field. When there are insufficient data to define the curve, this procedure gives centerlines which are obviously in error.

The experimental data are presented in tabular form in Appendix VI. A discussion of the probable accuracy of the experimental measurements is presented in Appendix III.

3.3 CENTERLINE DECAY

The centerline decay of composition and velocity for all of the hydrogen-air mixing tests is shown in Figs. 5 and 6, respectively. The composition and the velocity are nondimensionalized in the same manner. However, for the hydrogen-air system, $C_j = 1$ and $C_o = 0$; therefore,

$$C = \frac{C - C_o}{C_j - C_o}$$

These curves indicate that the centerline decay decreases with increasing velocity ratio (u_j/u_o) for systems with approximately the same density ratio (ρ_j/ρ_o). The centerline decay is indicative of the rate at which the streams mix. If the centerline decay decreases, the rate of mixing decreases; also the length of the potential core increases as the

*The region less than two nozzle diameters from the nozzle exit plane.

centerline decay decreases. The length of the potential core was determined by the method suggested by Zakkay and others (Ref. 6). The centerline composition was plotted versus axial distance on logarithmic paper. A curve through the data was extrapolated until it intersected the line corresponding to 100-percent jet gas concentration. It was assumed that the intersection defines the core length. A similar method was used to determine the velocity core lengths. The velocity core lengths were longer than the corresponding composition core lengths, which indicates that the transport of mass is more rapid than the transport of momentum.

It is interesting to note that the result obtained — that the mixing decreases as the velocity ratio increases — is exactly opposite to that predicted by the Prandtl eddy viscosity model presented in Section I.

The density ratio of the inner jet gas to the outer stream gas was increased in Series II by heating the outer stream gas. The density ratio was increased even more in Series III by using air as the jet gas as well as the outer stream gas. Figure 7 presents a comparison of the centerline velocity decay for the three different density ratios at approximately constant velocity ratio. The curves show that the mixing rate decreased with increasing density ratio for constant velocity ratio conditions. Since the mixing rate decreases with increasing velocity ratio and with increasing density ratio, it might appear that there would be a correlation between the mixing rate and the mass flux ratio ($\rho_j u_j / \rho_o u_o$). Another possible reason for considering this correlation is that the eddy viscosity model of Ferri, presented in Section I, is based on mass flux difference. This correlation was attempted using the centerline decay data, but it did not prove to be a valid correlation. In other words, the mixing rate did not decrease monotonically with increasing mass flux ratio.

Zakkay and others (Ref. 6) found the composition decay downstream of the potential core to follow the relationship $C_c = (x/x_{oc})^{-2}$. Figure 8 shows a comparison between Zakkay's results and the data from this investigation. By considering the expression $C_c = (x/x_{oc})^{-n}$, where Zakkay found $n = 2$, the results from this investigation gave $n = 1.7$. Zakkay also presented a generalized expression for potential core length variation with mass flux ratio. Figure 9 shows a comparison between Zakkay's generalized expression and data from this investigation. The dashed curve represents the function $x_o/R_o = 13\sqrt{\lambda}$, and it agrees reasonably well with the experimental data. The slopes of the dashed curve and the solid curve from Zakkay's expression are the same, but the constants differ by 40 percent. Zakkay's generalized expressions

do not seem to apply in this higher velocity ratio regime; however, differences in the initial conditions, such as boundary-layer thickness, may account for the discrepancies.

Figure 10 is a comparison of the centerline decay of composition, velocity, and total enthalpy for representative tests in Series I and II. These curves show that mass and energy are transported more rapidly than momentum.

The composition and total enthalpy decay is approximately equal for all of the tests conducted. This result may be expected in the Series I tests because the enthalpy was a stronger function of composition than of temperature, and the temperature difference between the streams was only 100°R. But, in the Series II tests, the temperature difference was 500°R, and the effect of different turbulent transport properties for heat and mass should be evident. Since nondimensionalized composition and total enthalpy were equal for the Series II tests, the turbulent transport coefficients appear to be equal. Consequently, the turbulent Lewis number is unity.

3.4 PROFILE SHAPES

The nondimensional composition for all of the hydrogen-air tests is plotted versus radial distance in Fig. 11. The composition is nondimensionalized and normalized by dividing by the centerline composition. The nondimensionalized radius is obtained by dividing by the radius at which the composition is one-half of its centerline value. A band representative of the data in Fig. 11 is presented in Fig. 12. Curves obtained from three different mathematical functions (cosine, exponential, and power law) are compared with the experimental data band. Each of the curves presented gives reasonably good agreement with the experimental data.

Nondimensional velocity is plotted versus radial distance in Fig. 13. The parameters were nondimensionalized and normalized in a manner similar to those in Fig. 11. The solid curve, which fits the data well, is the cosine function. The data in Figs. 11 and 13 are representative of all hydrogen-air test conditions and all axial locations in the second regime. The curves indicate that profile similarity is an adequate assumption for engineering calculations in the velocity ratio range considered. The data outside R/R_{mc} and $R/R_{mu} = 2.5$ are not considered because the data in this region have a small hydrogen concentration, a small velocity difference, and consequently, a large uncertainty in the calculated values (see Appendix III). The nondimensionalizing radii for

composition and velocity are presented in Table II so that the actual radii may be obtained from the curves in Figs. 11 and 13.

Figure 14 presents a comparison between typical experimental composition and velocity profiles from the same axial location for two different tests. The nondimensionalized composition and velocity are plotted versus radial distance. The composition profile is slightly wider than the velocity profile in each case.

In the first regime, the statement of profile similarity is

$$\frac{u - u_o}{u_j - u_o} = f\left(\frac{R - R_i}{b}\right)$$

The term (R_i) is the radius of the potential core, and b is the mixing zone width. Since it is very difficult to determine R_i or b accurately, the expression

$$\frac{R - R_o}{R_{.1} - R_o}$$

which is related to

$$\frac{R - R_i}{b}$$

is used in Fig. 15 to illustrate velocity profile similarity. The solid curve is obtained from the cosine expression,

$$\psi_u = \frac{1}{2} \left[1 + \cos \frac{\pi}{1.8} (R_B + 0.4) \right]$$

and agrees quite well with the data.

3.5 MOMENTUM, ENERGY, AND MASS TRANSPORT

In Fig. 16, the nondimensionalized velocity is plotted versus the nondimensionalized total enthalpy for all of the hydrogen-air tests. The velocity was nondimensionalized by using the jet velocity, instead of the centerline velocity, in this case. The dashed curve is the result for unity Prandtl number, and deviation from it is indicative of nonunity Prandtl number. These same parameters are plotted in Fig. 17 for the air-air test, and a distinctly different trend is evident.

There appears to be a definite relationship between the transport of energy and the transport of momentum. However, it is not obvious how to estimate the Prandtl number for this relationship. It is possible that a relationship between the velocity and total enthalpy, such as the ones presented in Figs. 16 and 17, may be more useful for engineering

calculations than the Prandtl number. This is even more probable if the Prandtl number must be treated as a variable.

Composition is plotted versus nondimensionalized total enthalpy in Fig. 18. The solid curve indicates the result for unity Lewis number. The experimental points deviate only slightly from the curve, which indicates that unity Lewis number is a good assumption for these data.

In all hydrogen-air tests, the turbulent transport of mass and total enthalpy is more rapid than the transport of momentum. This result is in agreement with other investigations reported (Refs. 3 and 4).

The data presented in this report are being further reduced to determine the turbulent transport coefficients. This is being done by numerically solving a set of integral equations involving density, velocity, pressure, composition, and enthalpy. The ratio of the transport coefficients will be used to determine the variation in Prandtl number indicated in Figs. 16 and 17. The results of this work will be presented in a future report.

3.6 BOUNDARY-LAYER THICKNESS

Total pressure distributions downstream of the nozzle lip were measured to determine the boundary-layer thickness. The measurements were made with a stainless steel probe of 0.004-in. OD and 0.001-in. wall. The total pressure traverses were made at axial stations less than 0.010 in. downstream of the nozzle lip. Data for one hydrogen-air condition and two air-air conditions are presented in Fig. 19. The combined width of the inner and outer boundary layers (Δ) is approximately 14 percent of the inner nozzle radius. The thickness (Δ) is measured between the 99-percent velocity points in the inner and outer boundary layers and includes the thickness of the nozzle lip.

3.7 STATIC PRESSURE

Typical static pressure distributions are presented in Figs. 20 and 21. The pressure gradients are relatively large in the near field region; however, in a short distance, the gradients are smoothed to less than one-percent variation.

SECTION IV CONCLUSIONS

The primary differences between this investigation and other investigations of turbulent mixing are that (1) the initial boundary-layer effect was reduced by designing the nozzles to minimize the boundary-layer buildup at the entrance to the test section, and (2) the velocity ratio range was higher than that previously reported. The following conclusions may be drawn for subsonic, axisymmetric mixing, from this experimental investigation.

1. For hydrogen-air mixing systems, the centerline decay of composition and velocity decreased with increasing velocity ratio (jet velocity/outer stream velocity). Also, the centerline decay of velocity decreased with increasing density ratio for systems with the same initial velocity ratio.
2. Similarity of composition, velocity, and total enthalpy profiles is a valid assumption for engineering calculations in the velocity ratio range from 2.4 to 6.3 for hydrogen-air mixing systems. The commonly used expressions for the profile shapes, such as the cosine function, the three-halves power law, and the error curve, are representative of the shapes.
3. There appears to be a definite and consistent relationship between the transport of momentum and energy for hydrogen-air and air-air mixing systems. The Prandtl number is not unity, and it is not obvious that it is a constant.
4. Unity Lewis number is a valid assumption in the velocity ratio range considered, at least for streams which have moderate temperature differences (jet gas temperature/outer stream temperature less than 1.0 but greater than 0.5).

The data presented in this report are being further reduced to determine the turbulent transport coefficients. The results of this work will be presented in a future report.

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APPENDIXES

- I. ILLUSTRATIONS**
- II. TABLES**
- III. RELATIVE ERROR ANALYSIS**
- IV. CALCULATION PROCEDURE**
- V. CONSISTENCY CHECK**
- VI. EXPERIMENTAL DATA**

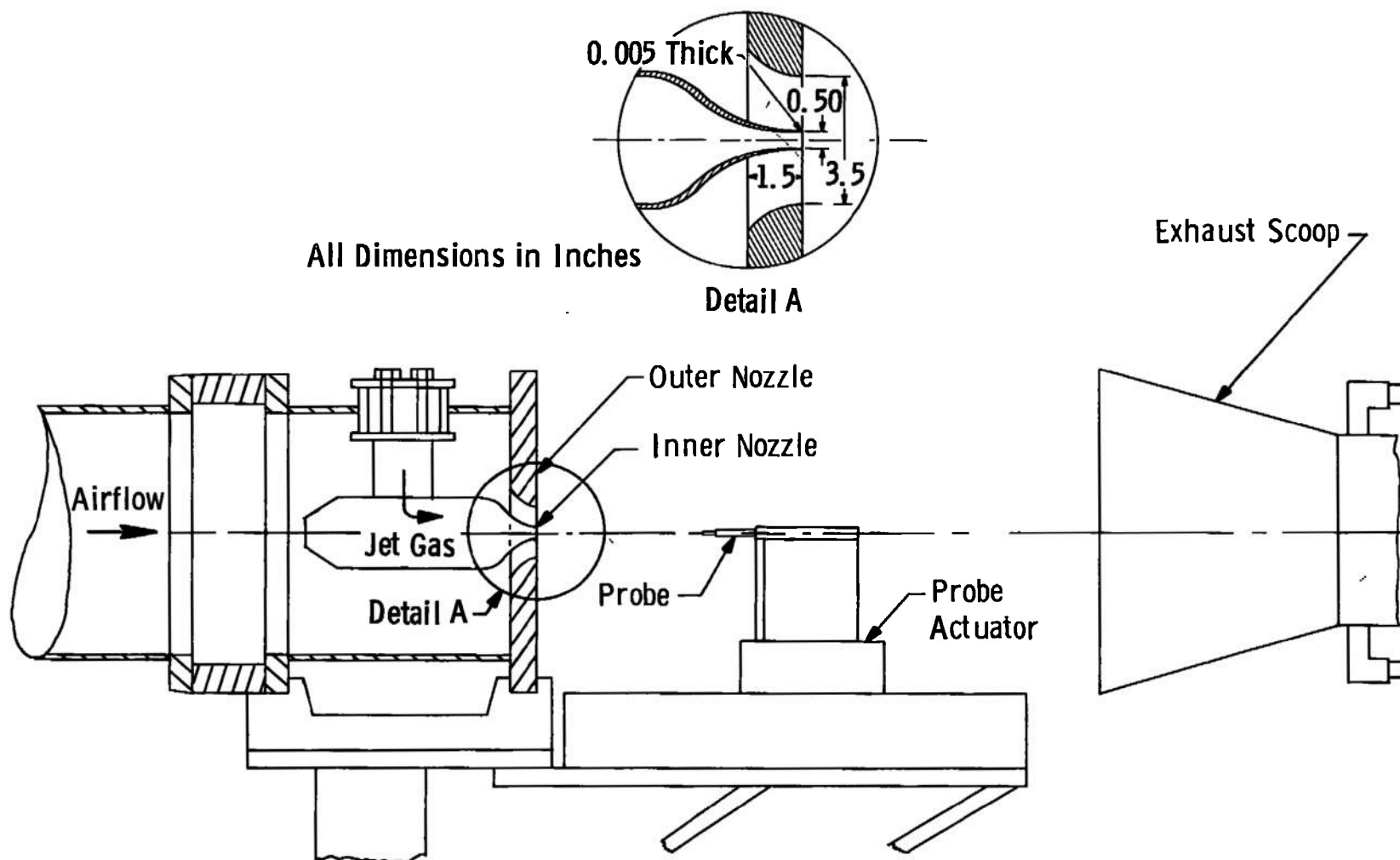


Fig. 1 Schematic Diagram of the Free-Jet Mixing Test Cell

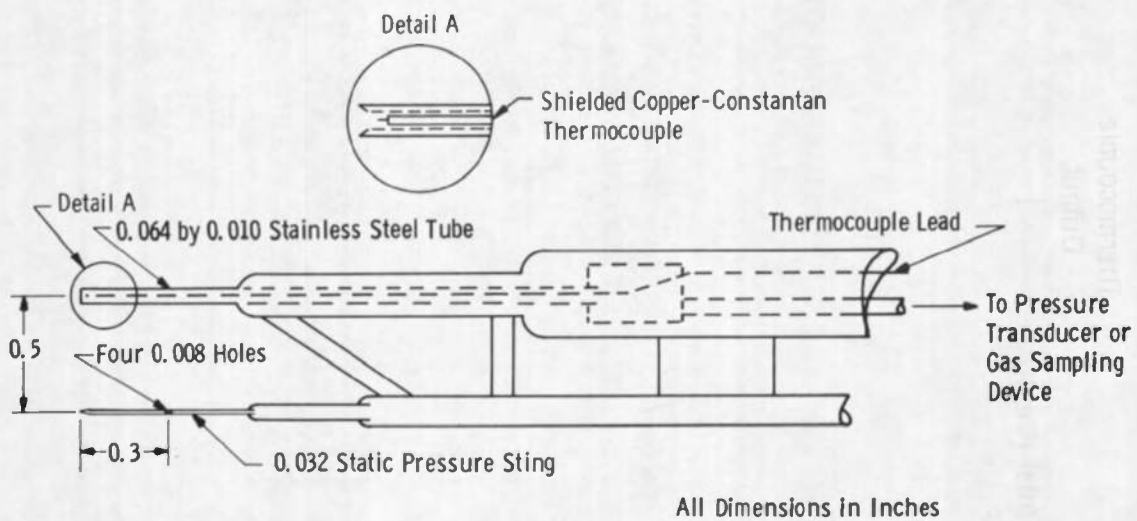
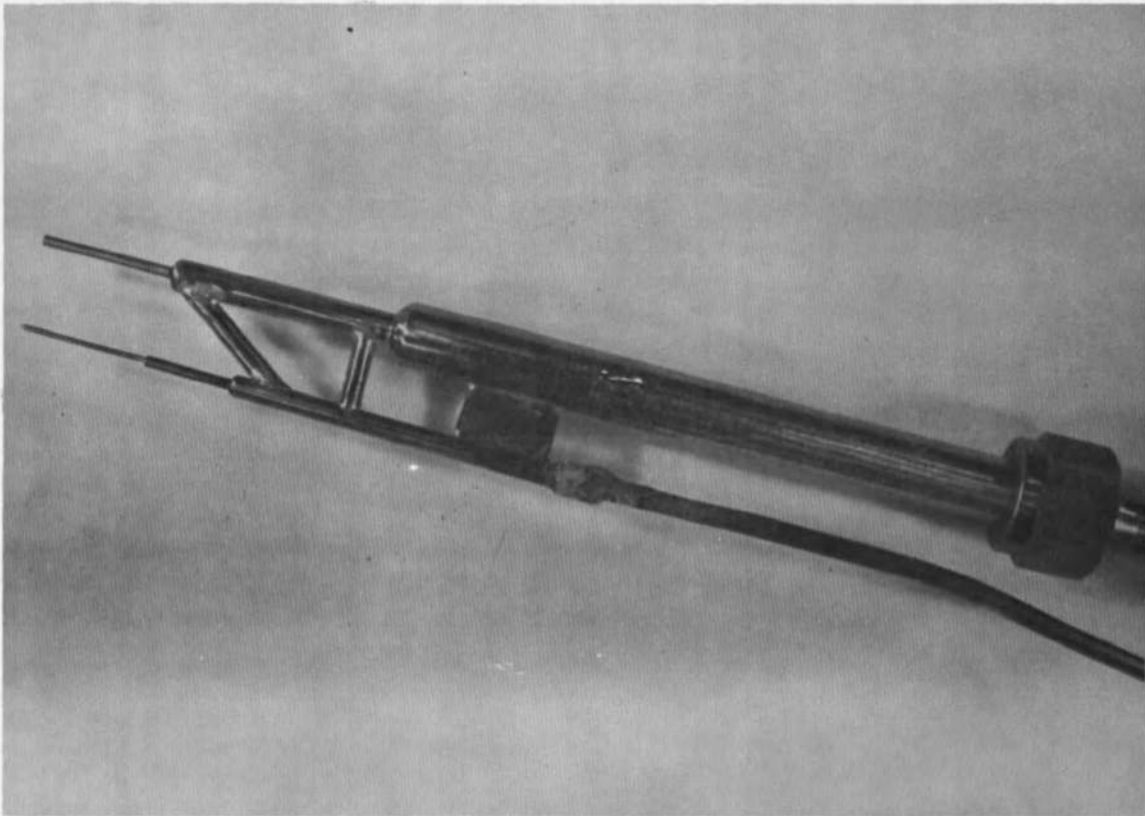


Fig. 2 Dual-Probe Arrangement

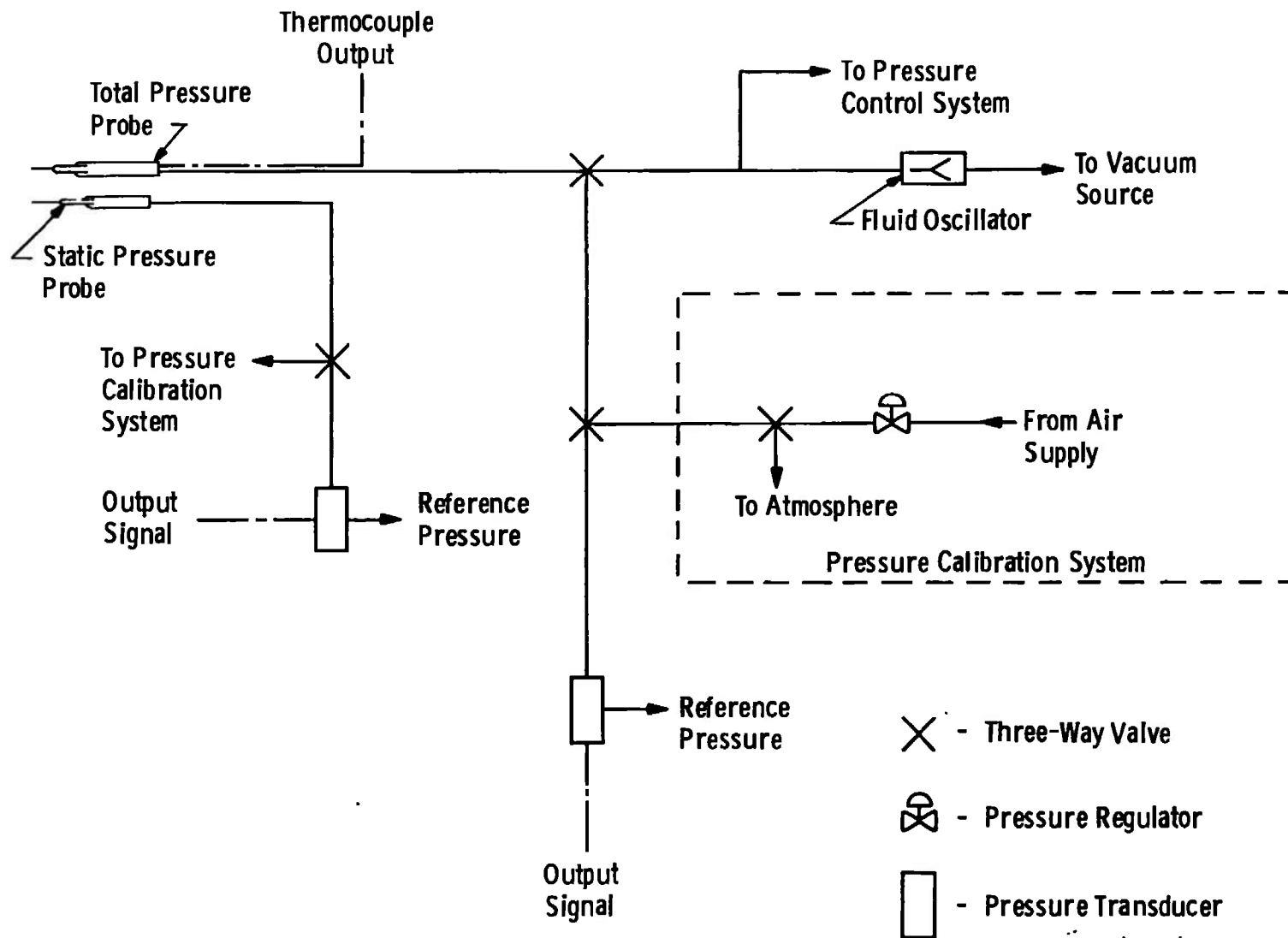


Fig. 3 Probe-Related Components

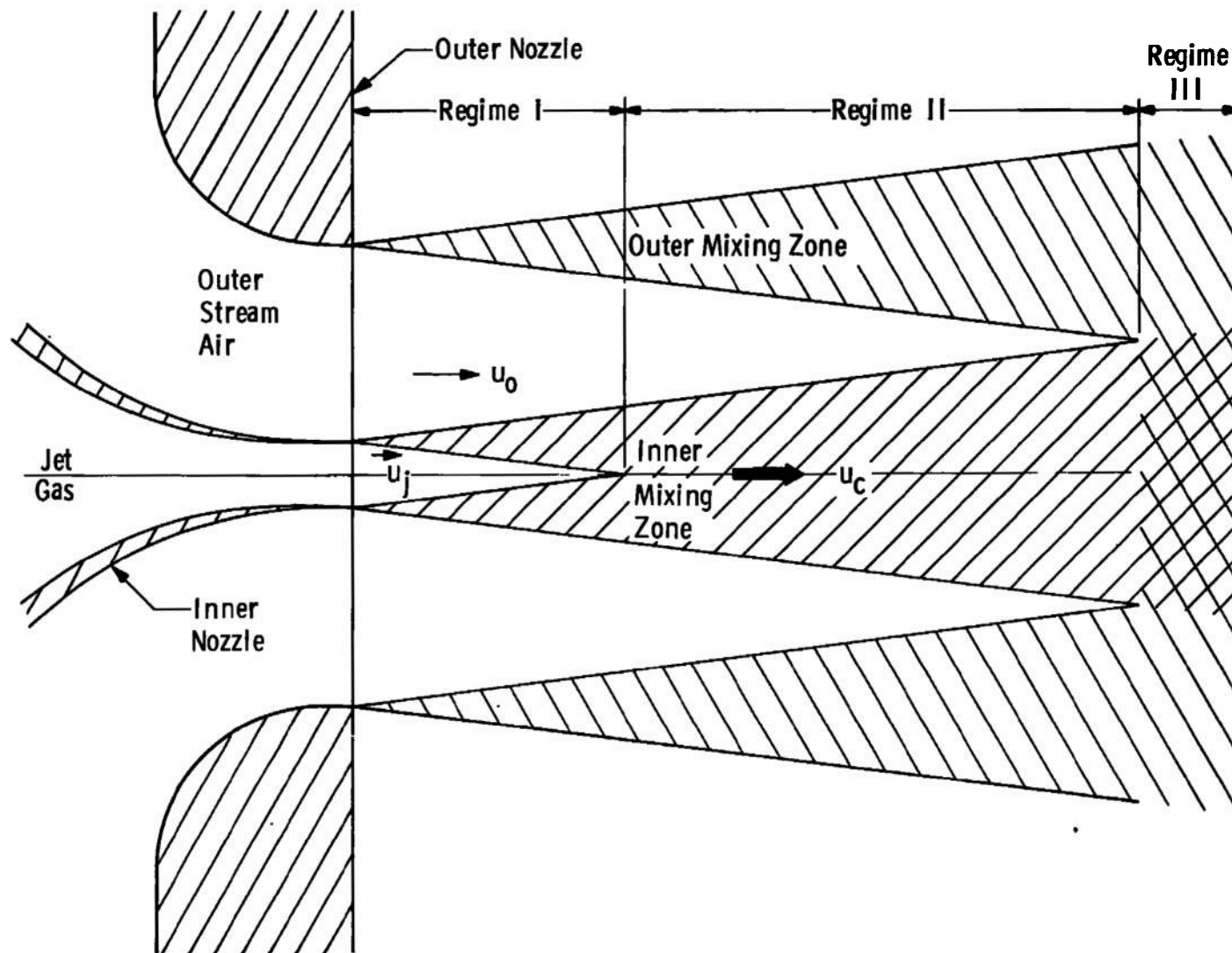


Fig. 4 Free-Jet Mixing Configuration

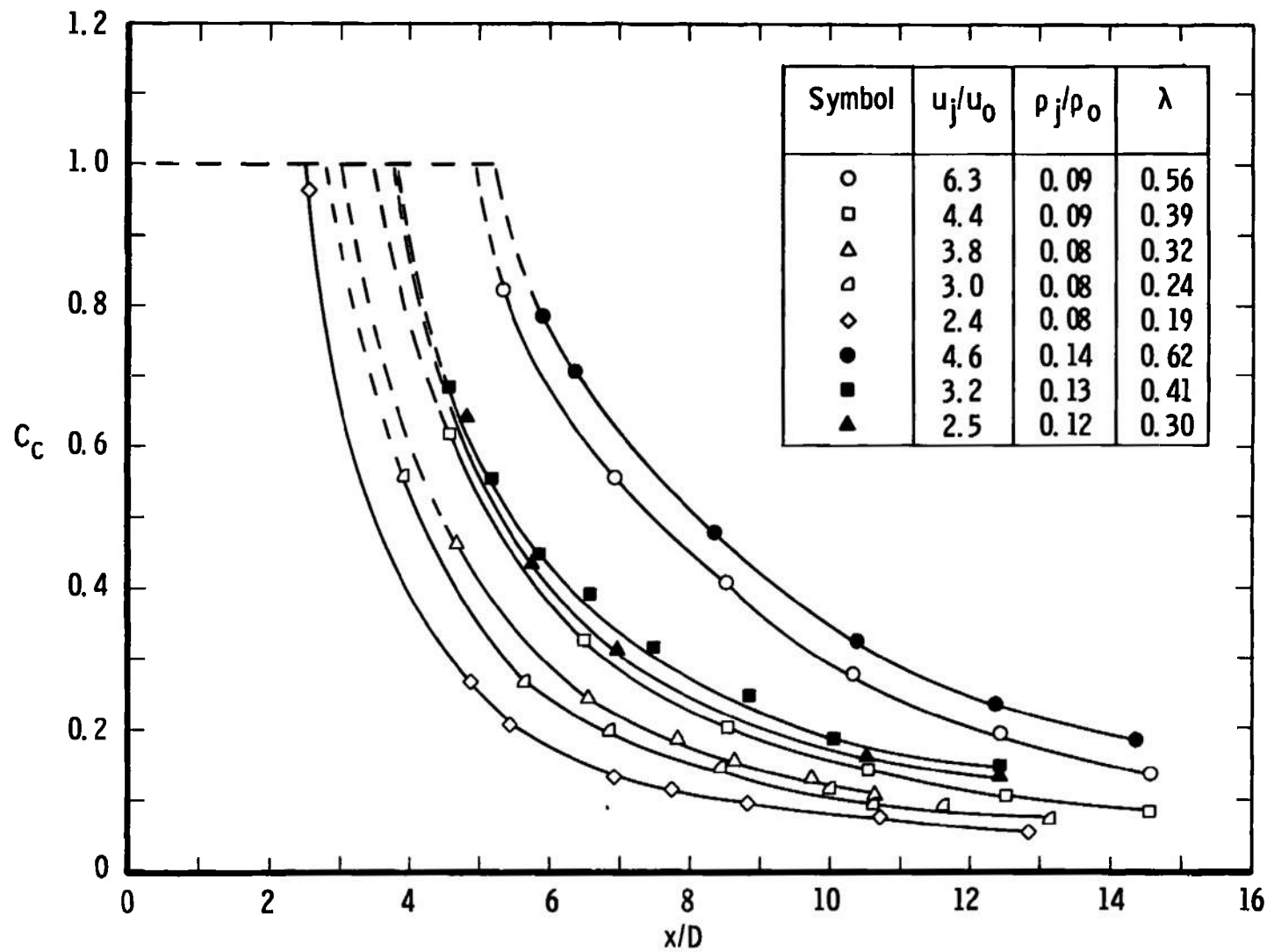


Fig. 5 Centerline Composition Decay for the Hydrogen-Air Tests

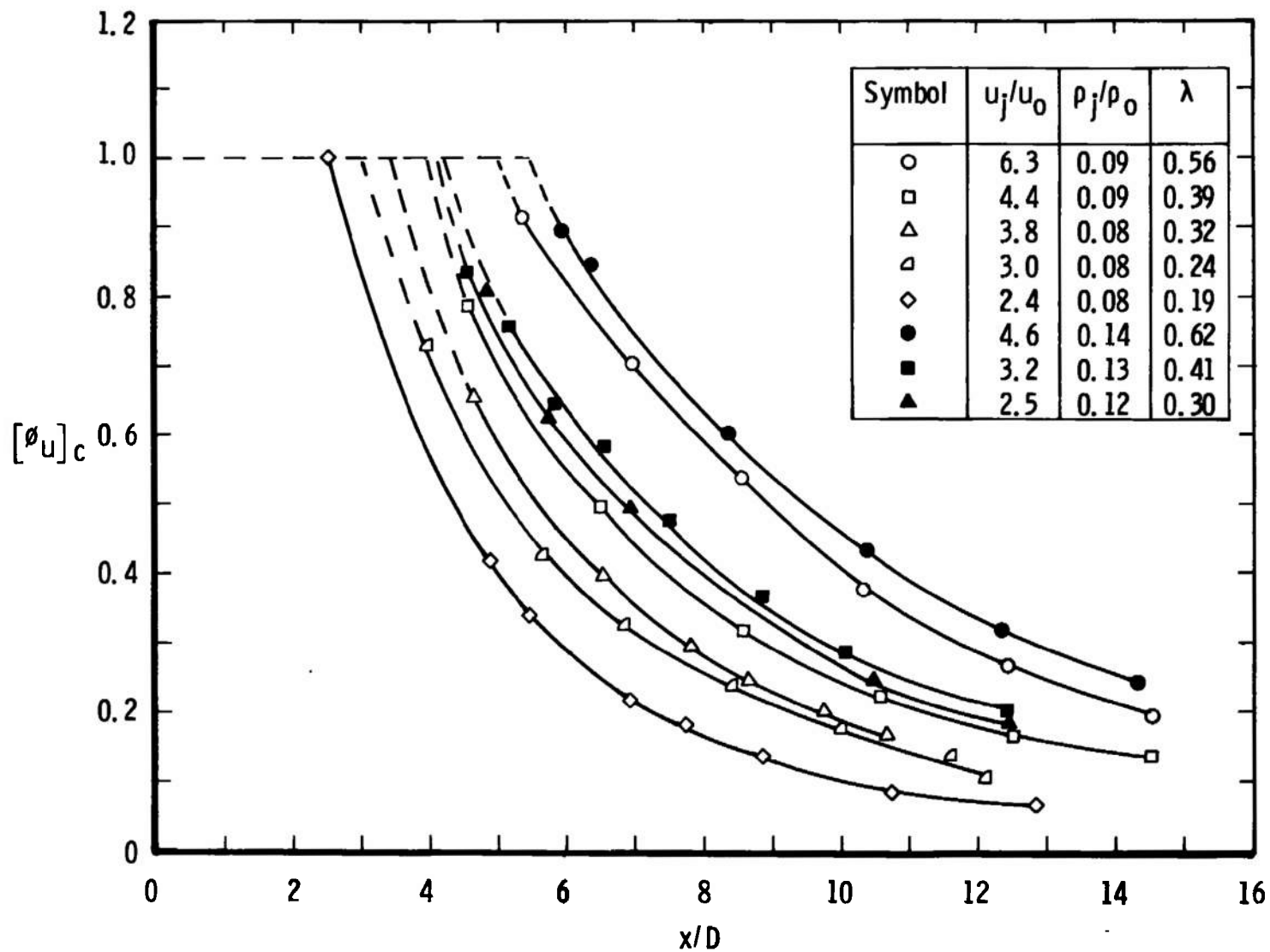


Fig. 6 Centerline Velocity Decay for the Hydrogen-Air Tests

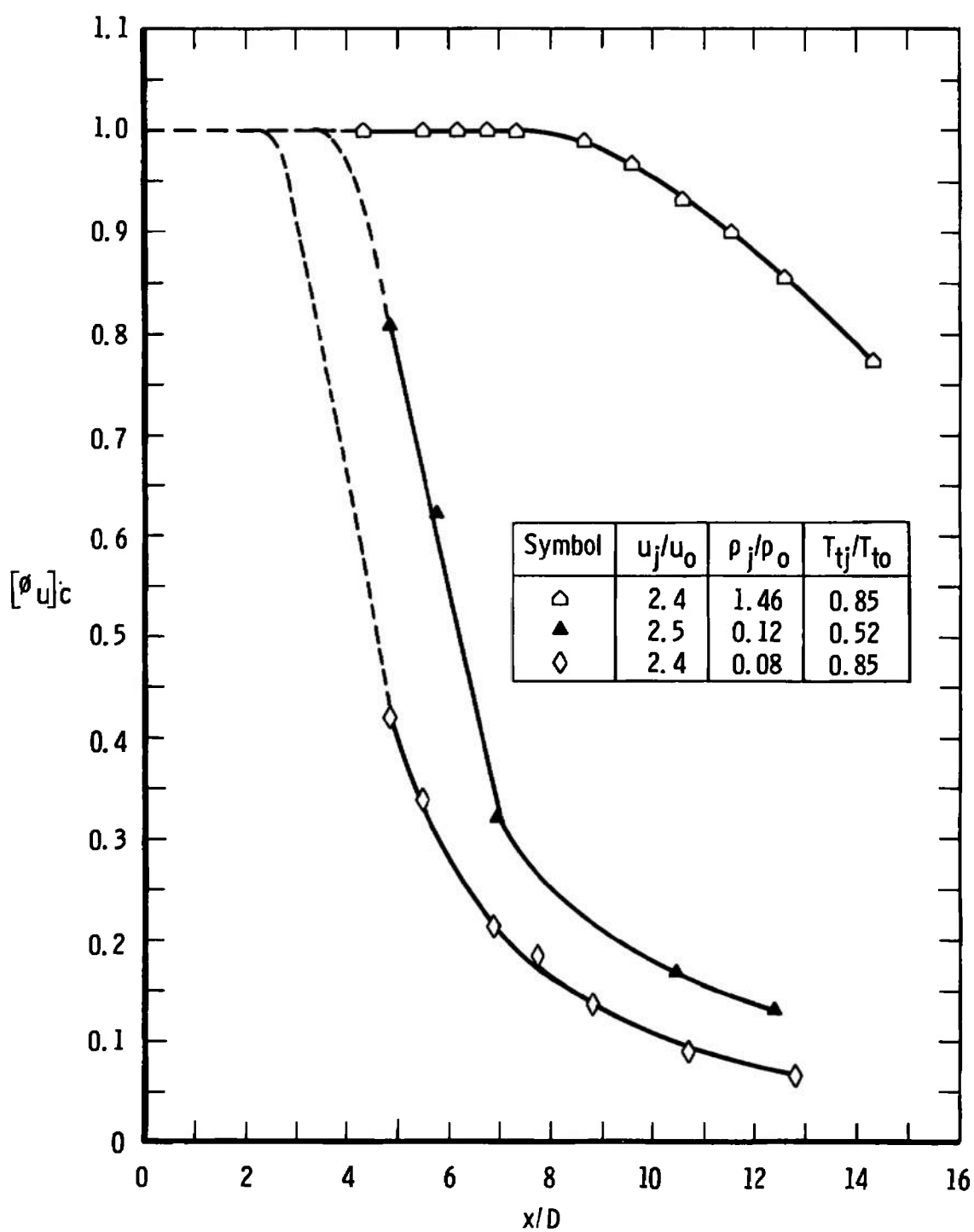


Fig. 7 Centerline Velocity Decay for Systems with the Same Initial Velocity Ratio

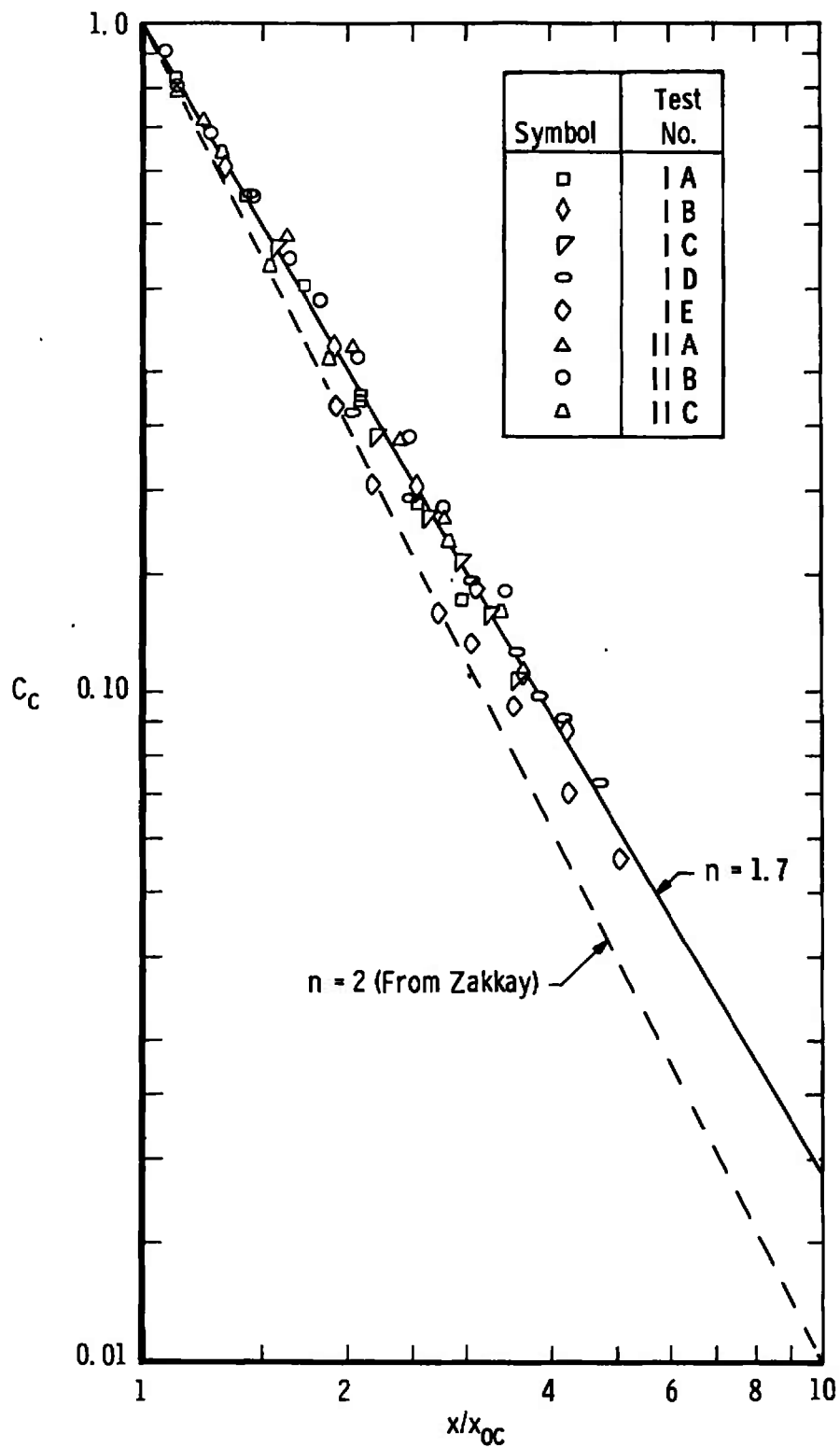


Fig. 8 Centerline Composition Decay, Comparison with Zakkay's Results

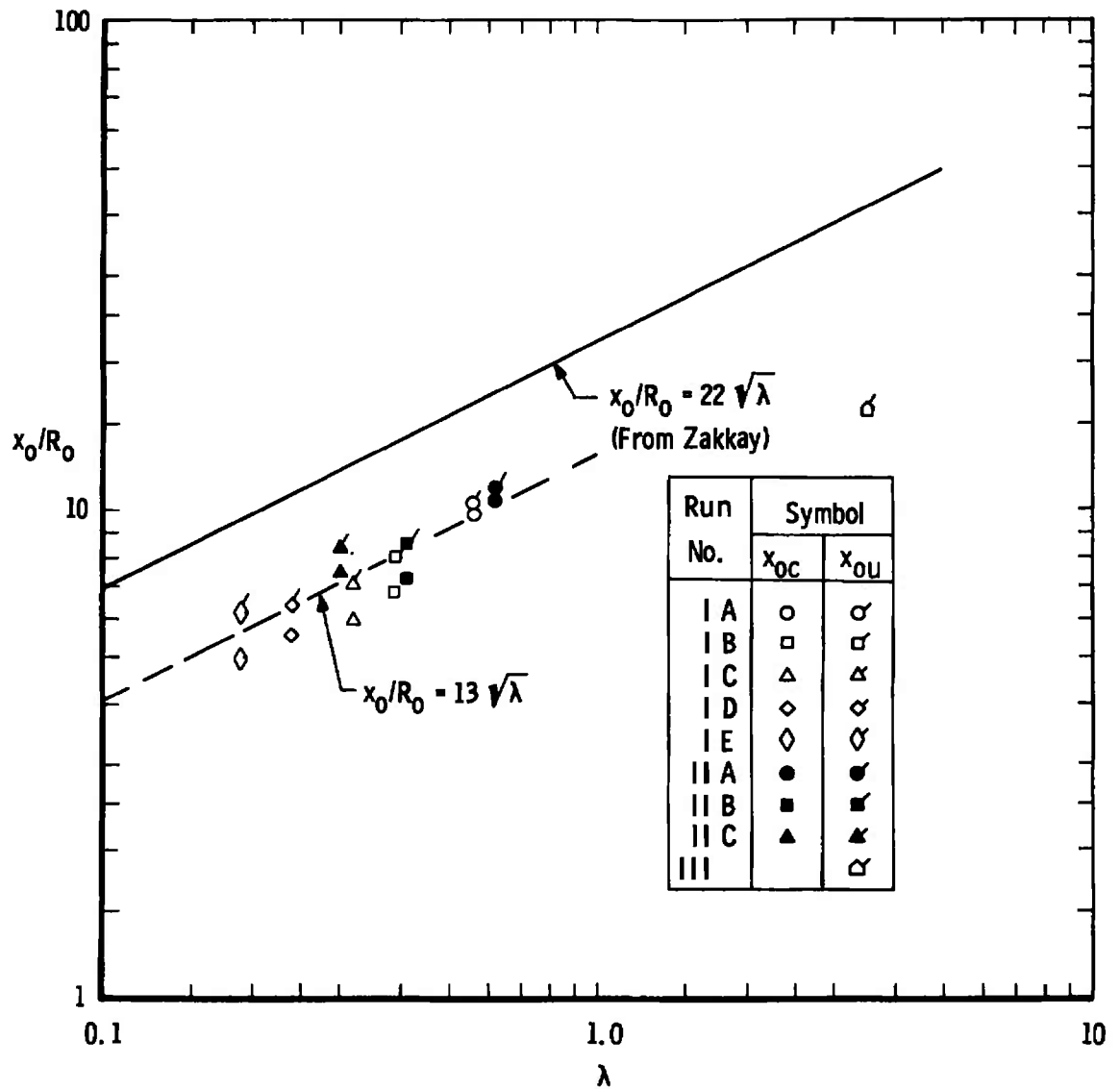
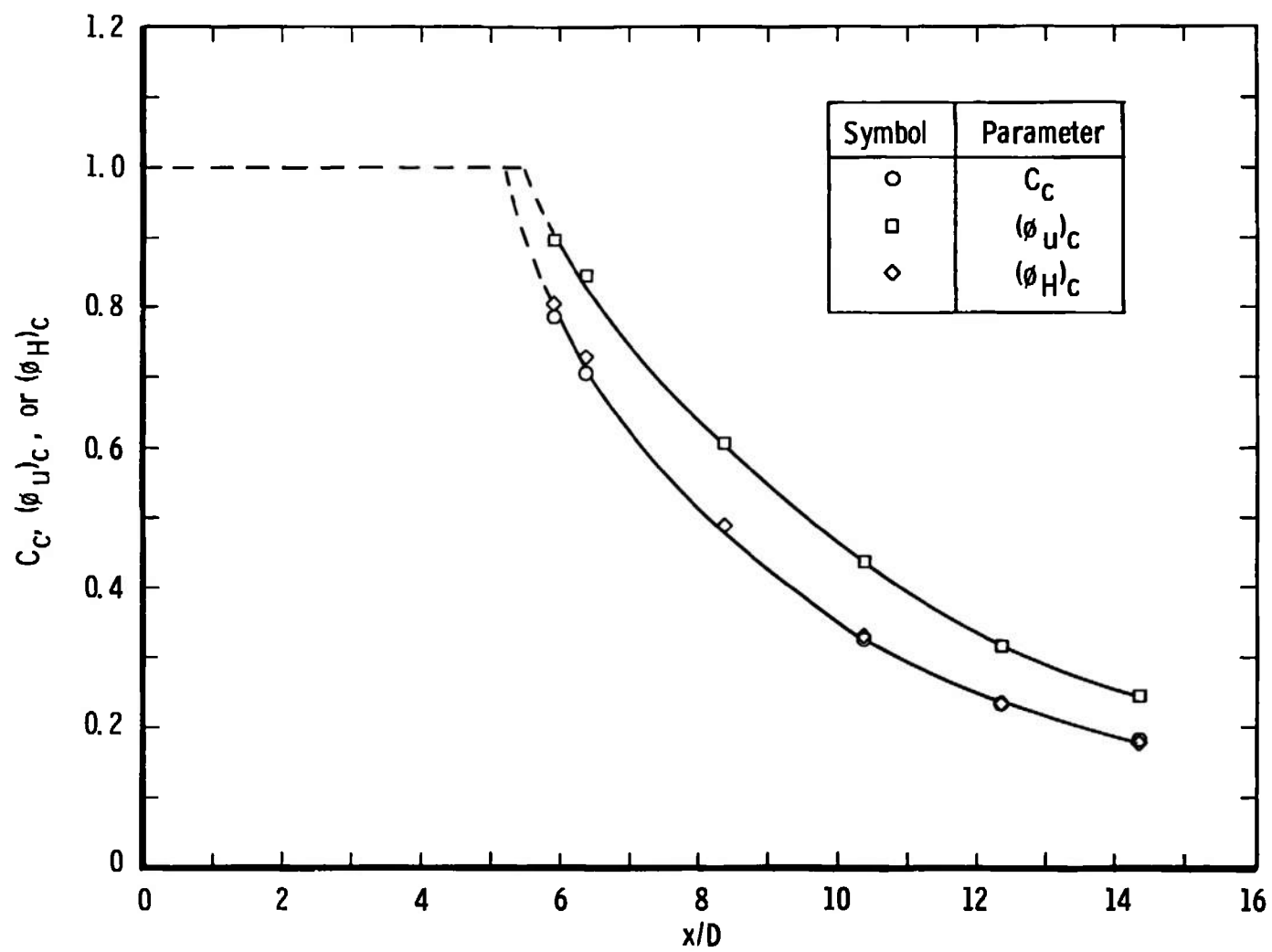
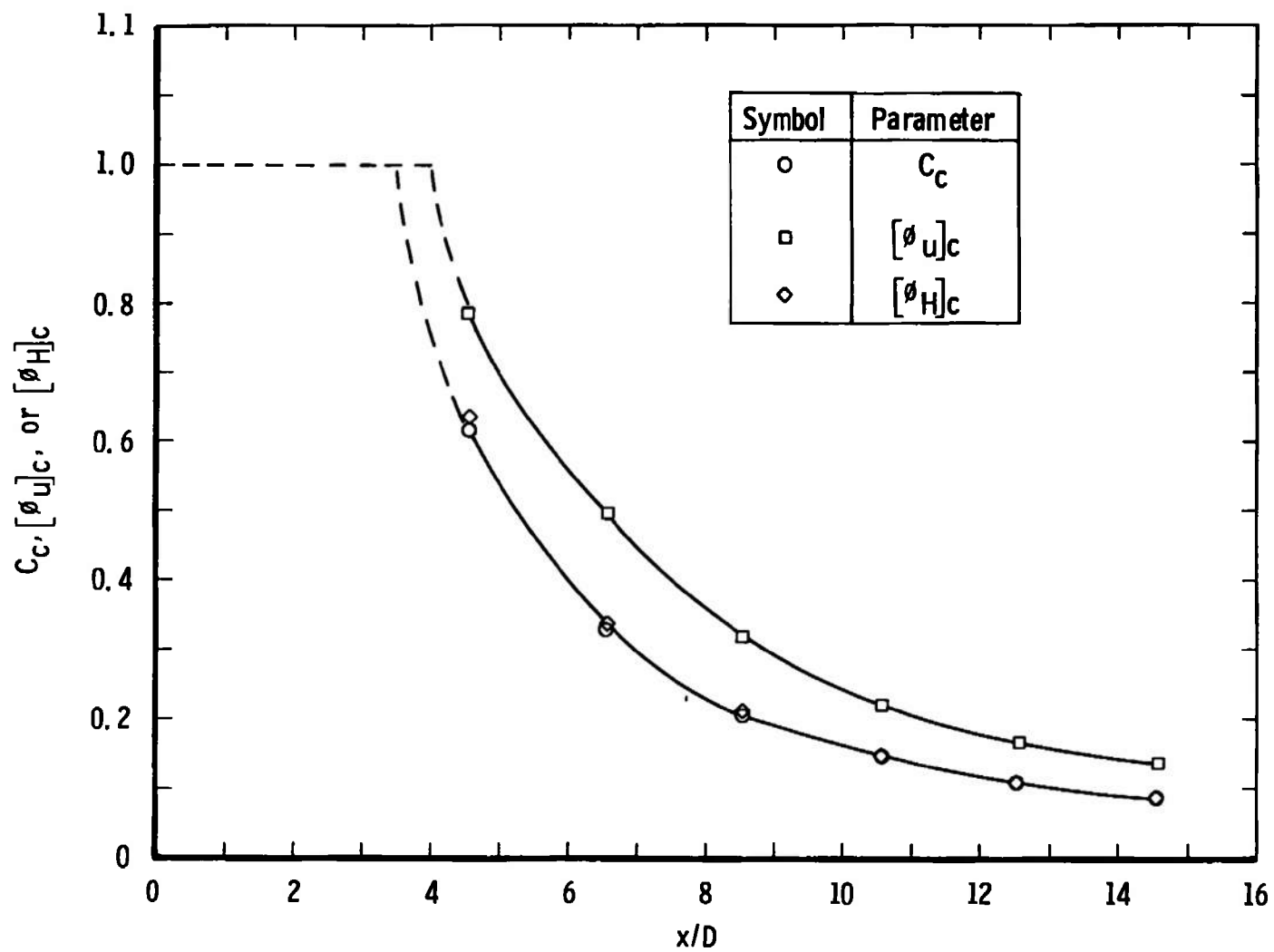


Fig. 9 Potential Core Length versus Mass Flux Ratio



a. Test II A

Fig. 10 Relative Centerline Decay of Composition, Velocity, and Total Enthalpy



b. Test I B

Fig. 10 Concluded

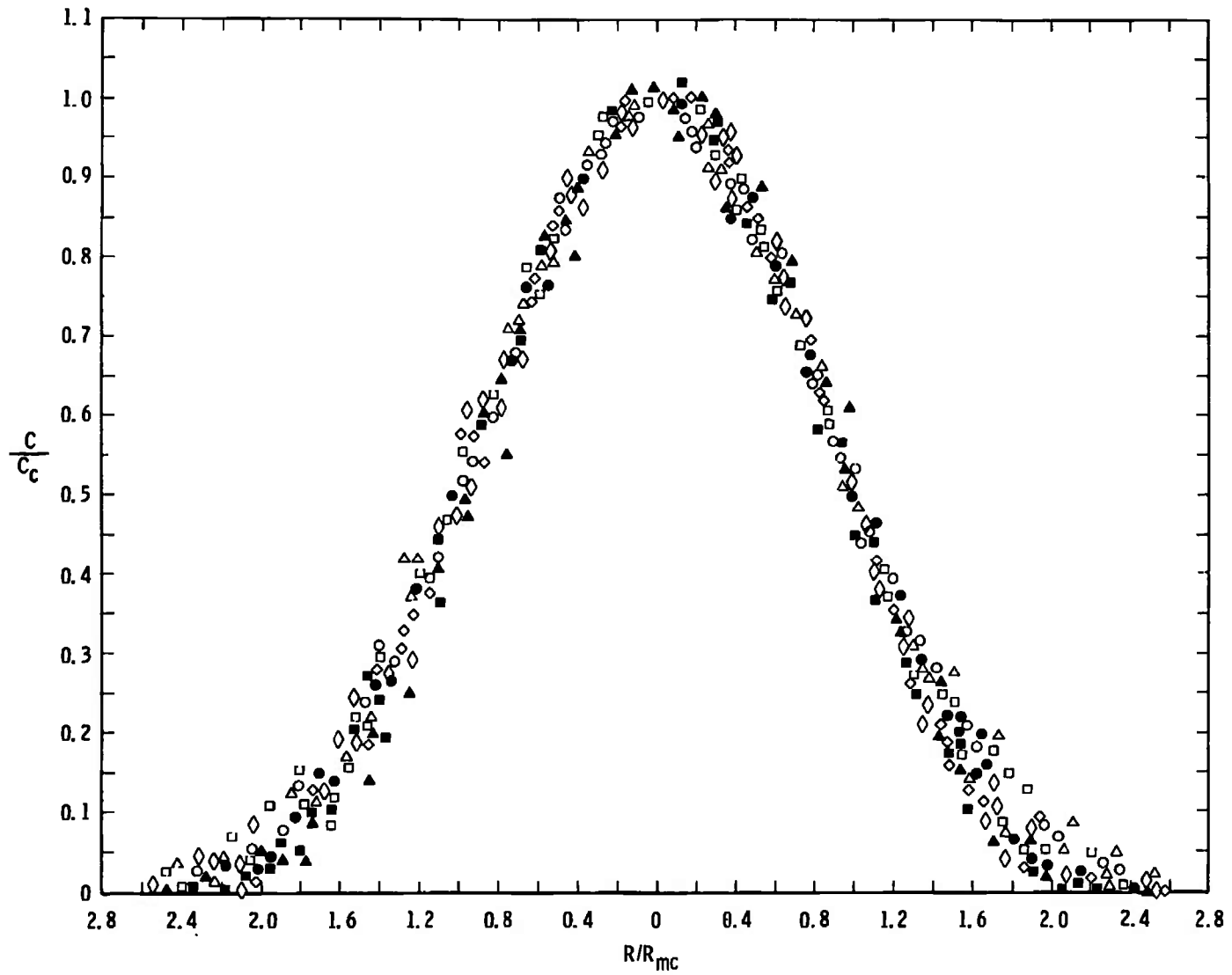


Fig. 11 Composite Second Regime Radial Composition Profile for All Hydrogen-Air Tests

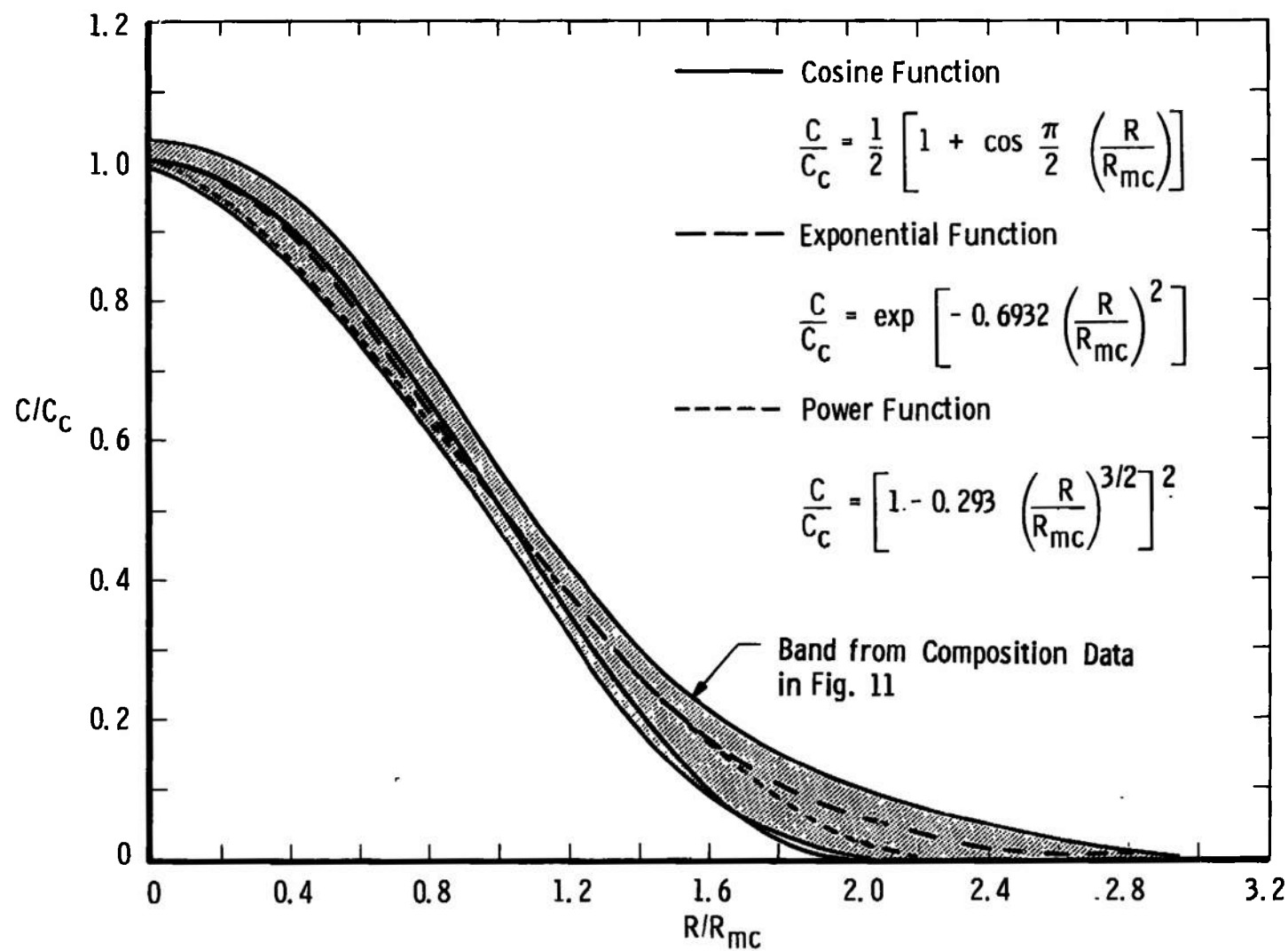


Fig. 12 Radial Composition Profile, Comparison with Mathematical Functions

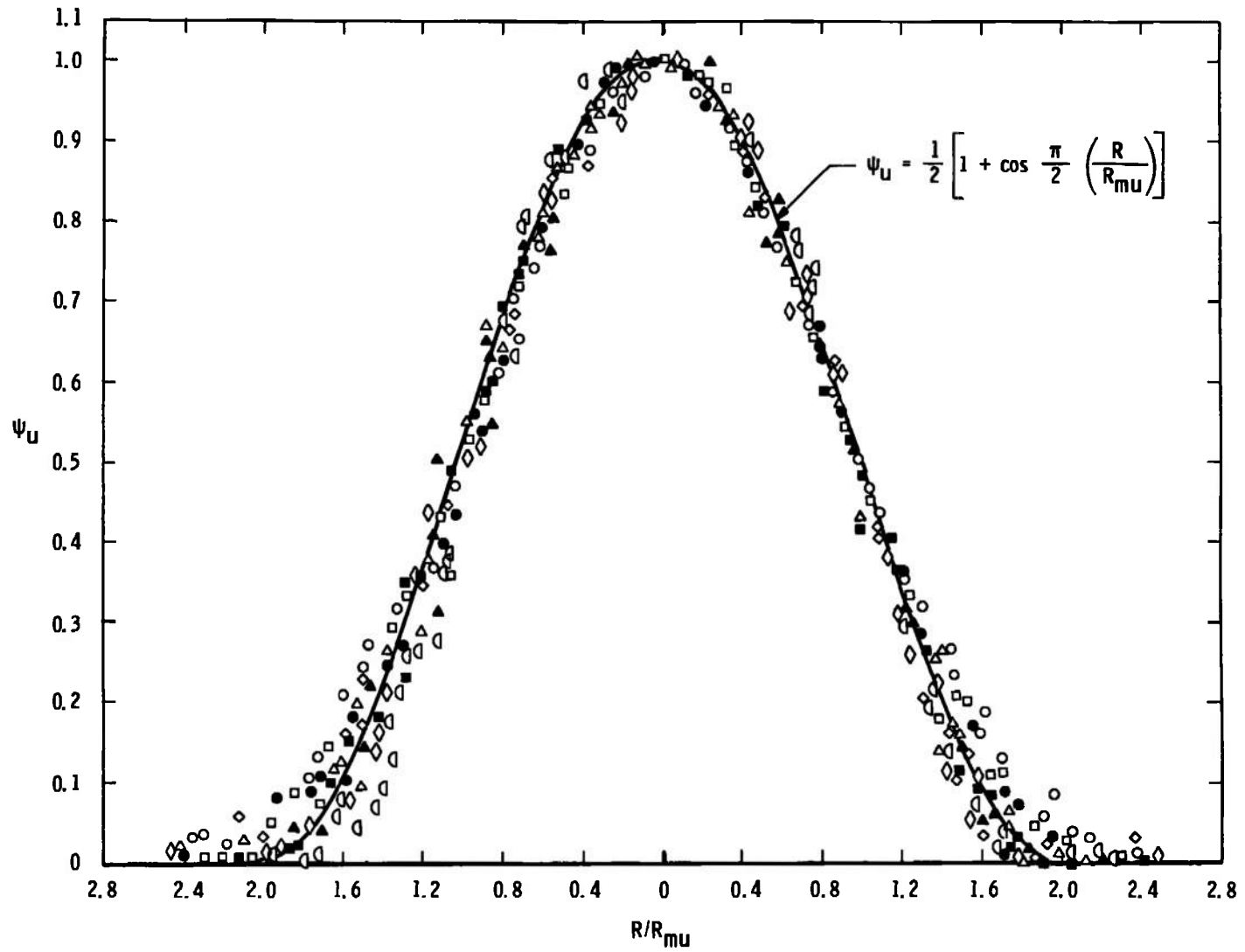


Fig. 13 Composite Second Regime Radial Velocity Profile for All Hydrogen-Air Tests

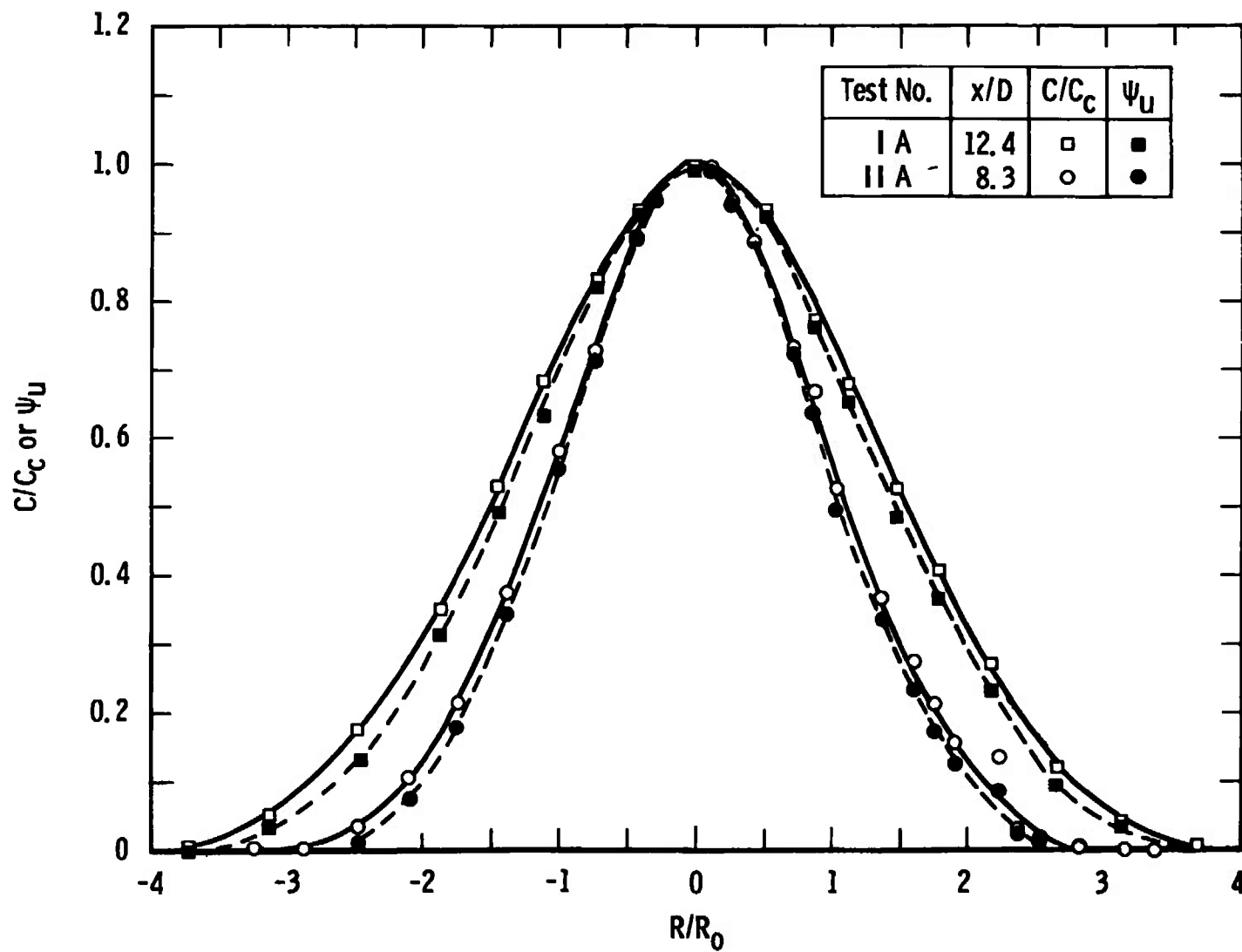


Fig. 14 Typical Radial Composition and Velocity Profiles

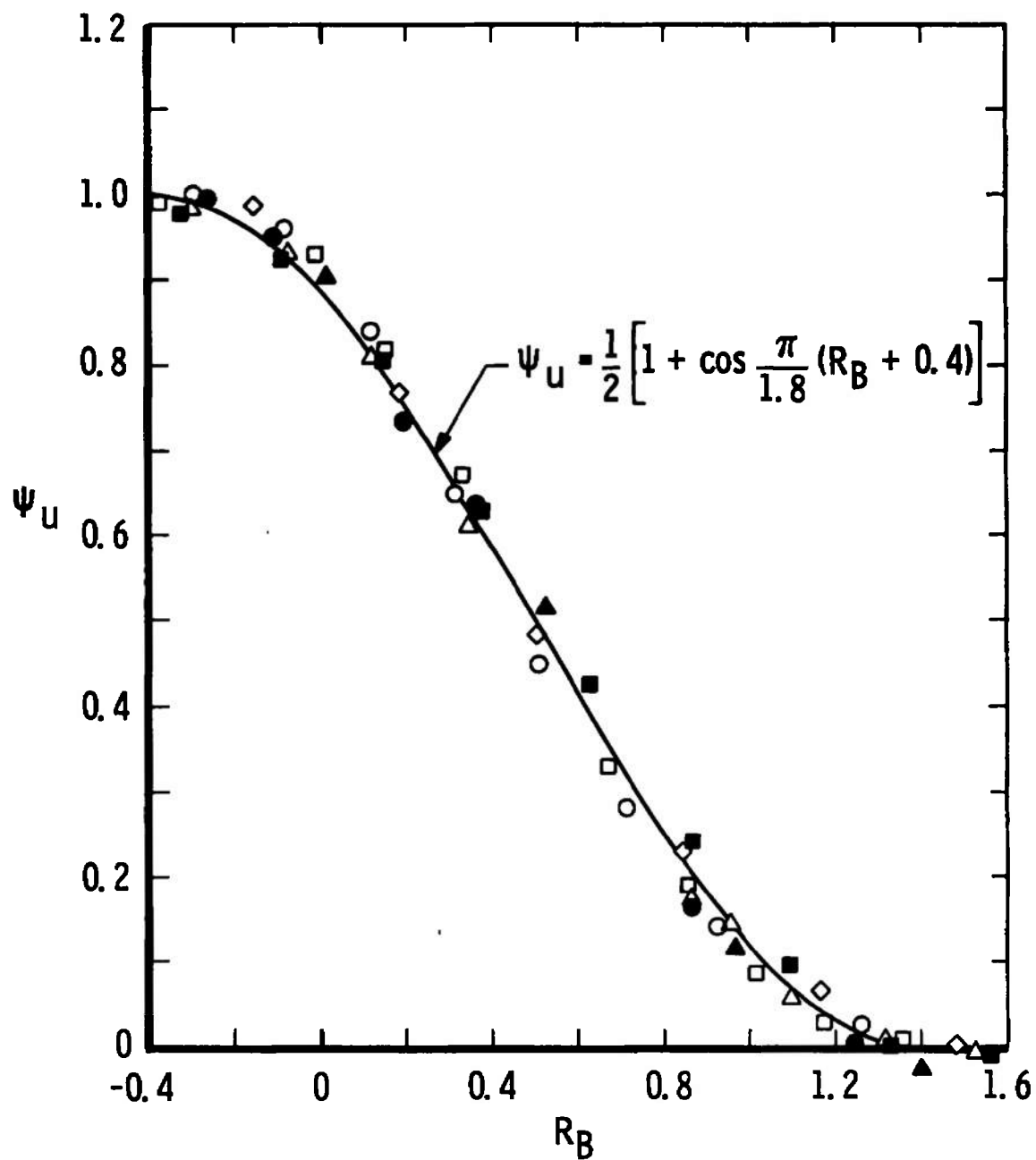


Fig. 15 Composite First Regime Radial Velocity Profile for All Hydrogen-Air Tests

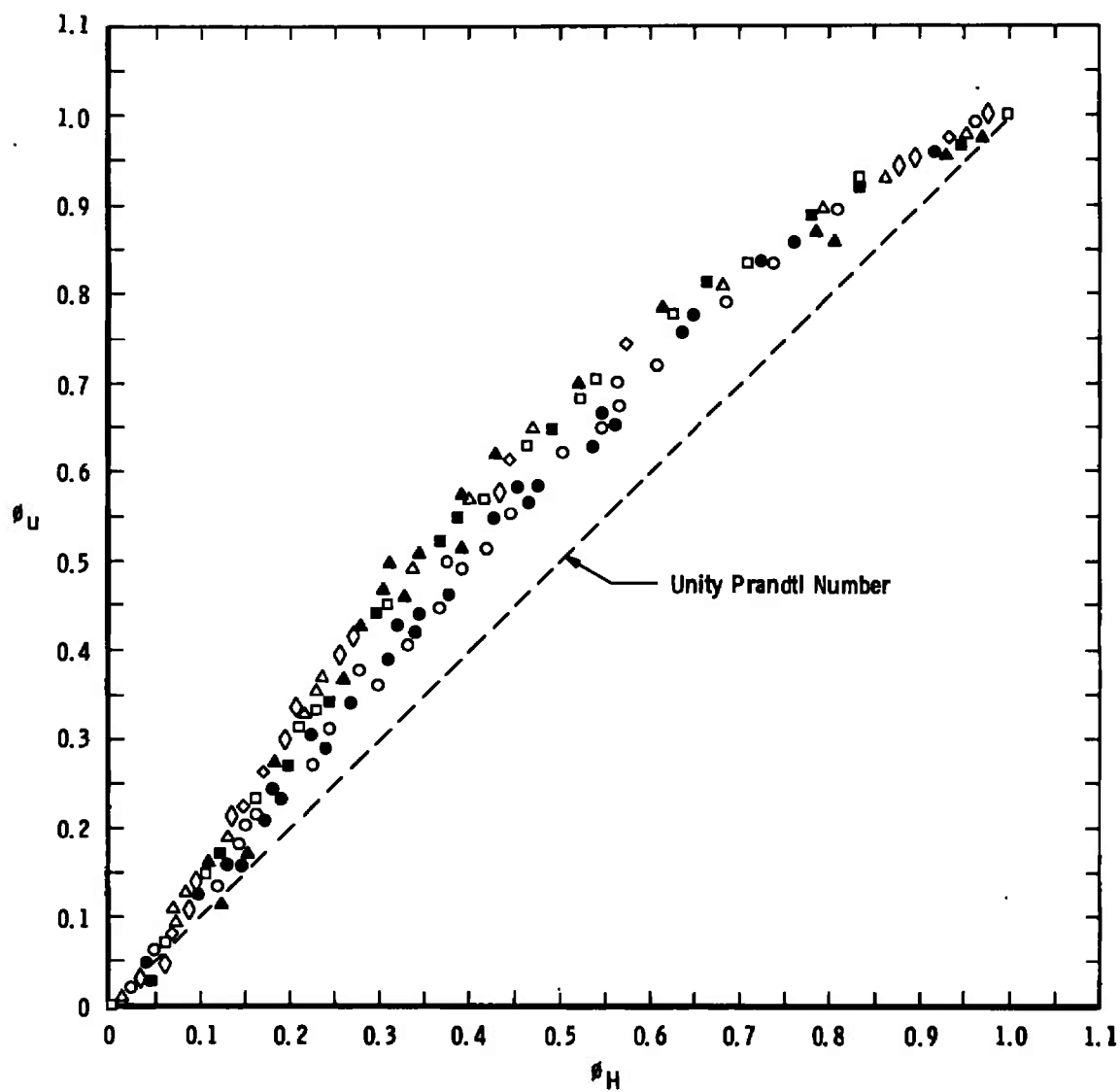


Fig. 16 Velocity-Enthalpy Relationship for the Hydrogen-Air Tests

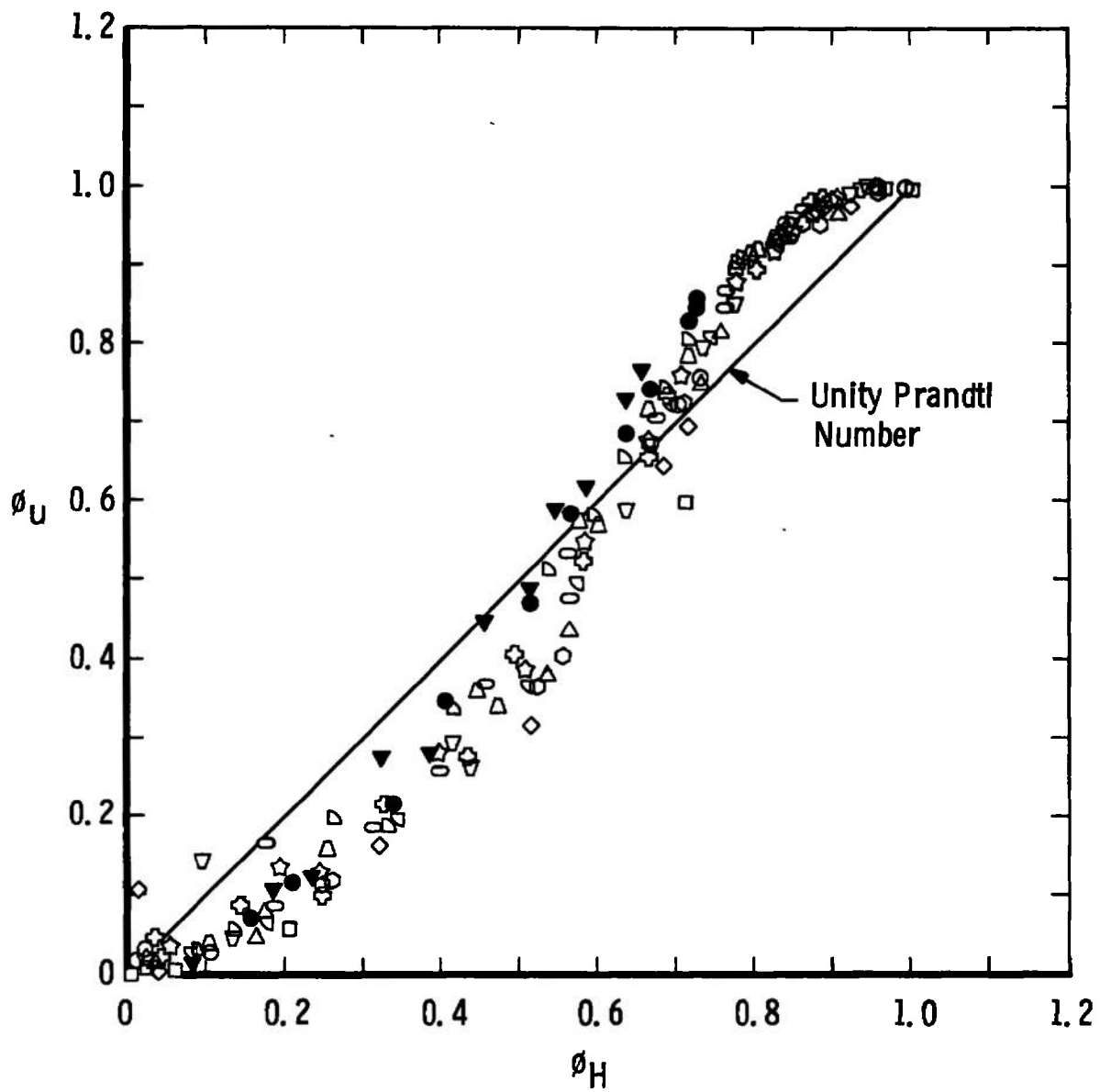


Fig. 17 Velocity-Enthalpy Relationship for the Air-Air Tests

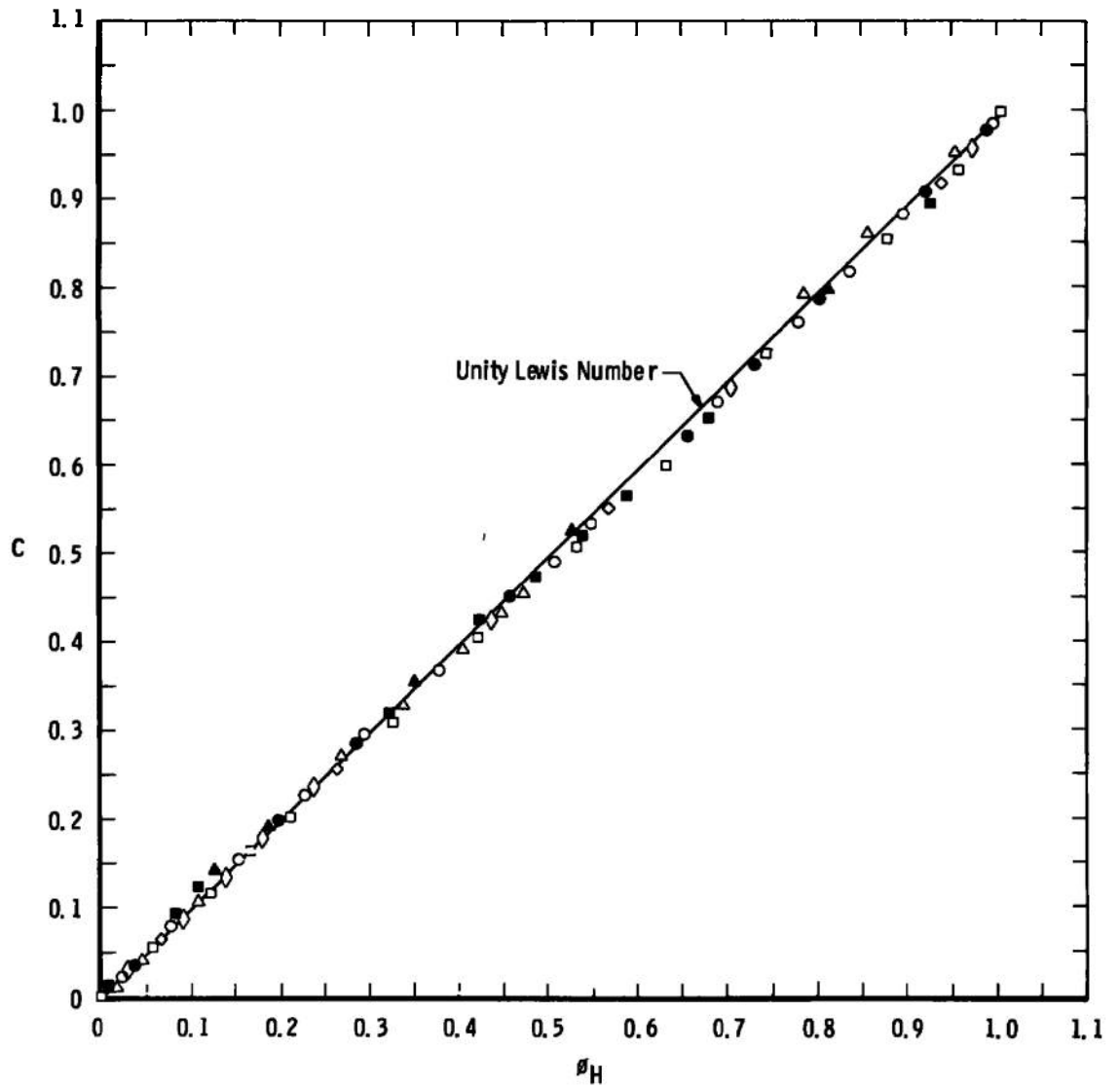


Fig. 18 Composition-Enthalpy Relationship for All of the Hydrogen-Air Tests

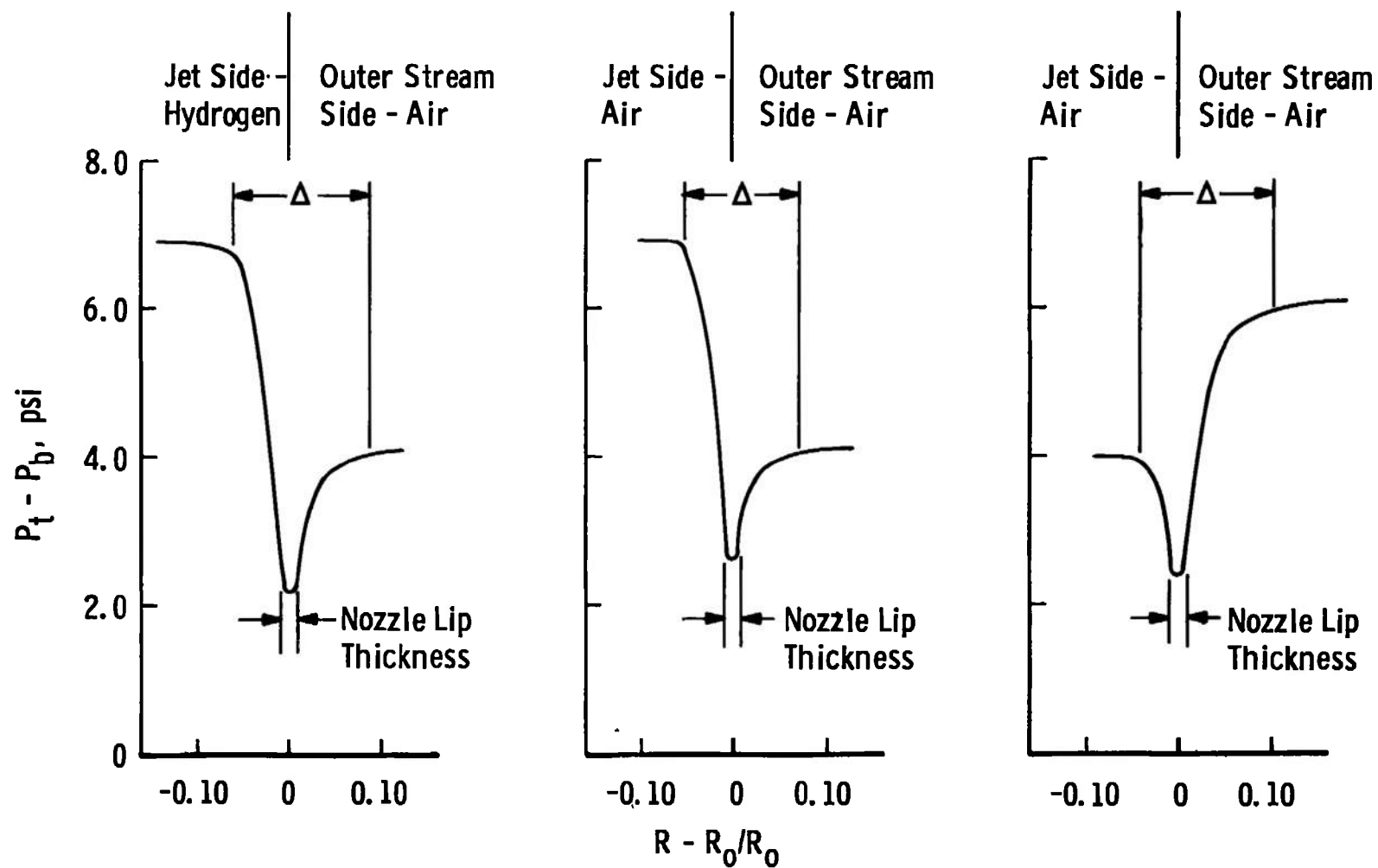


Fig. 19 Boundary-Layer Thickness

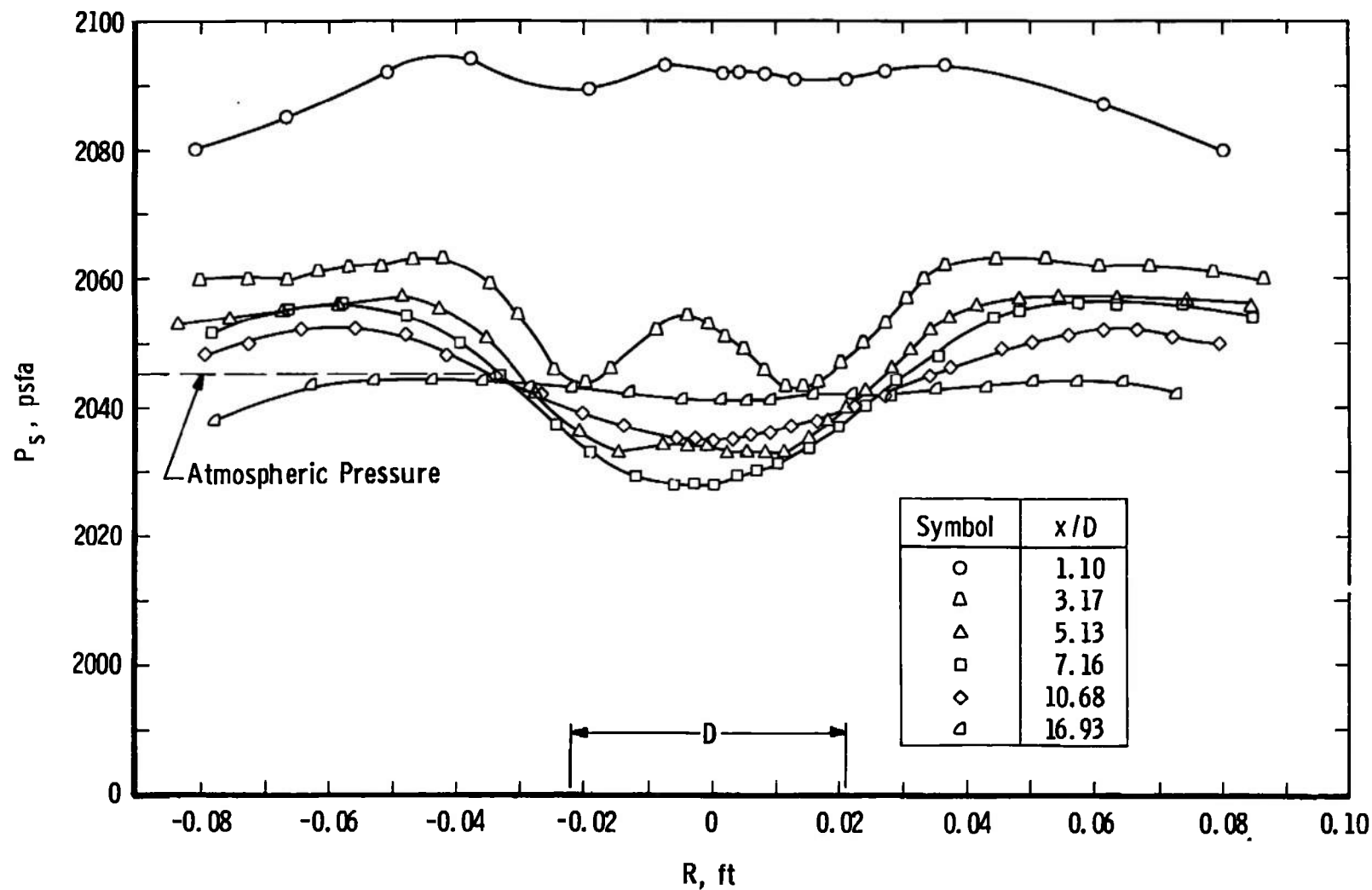


Fig. 20 Static Pressure Profiles for Test II B

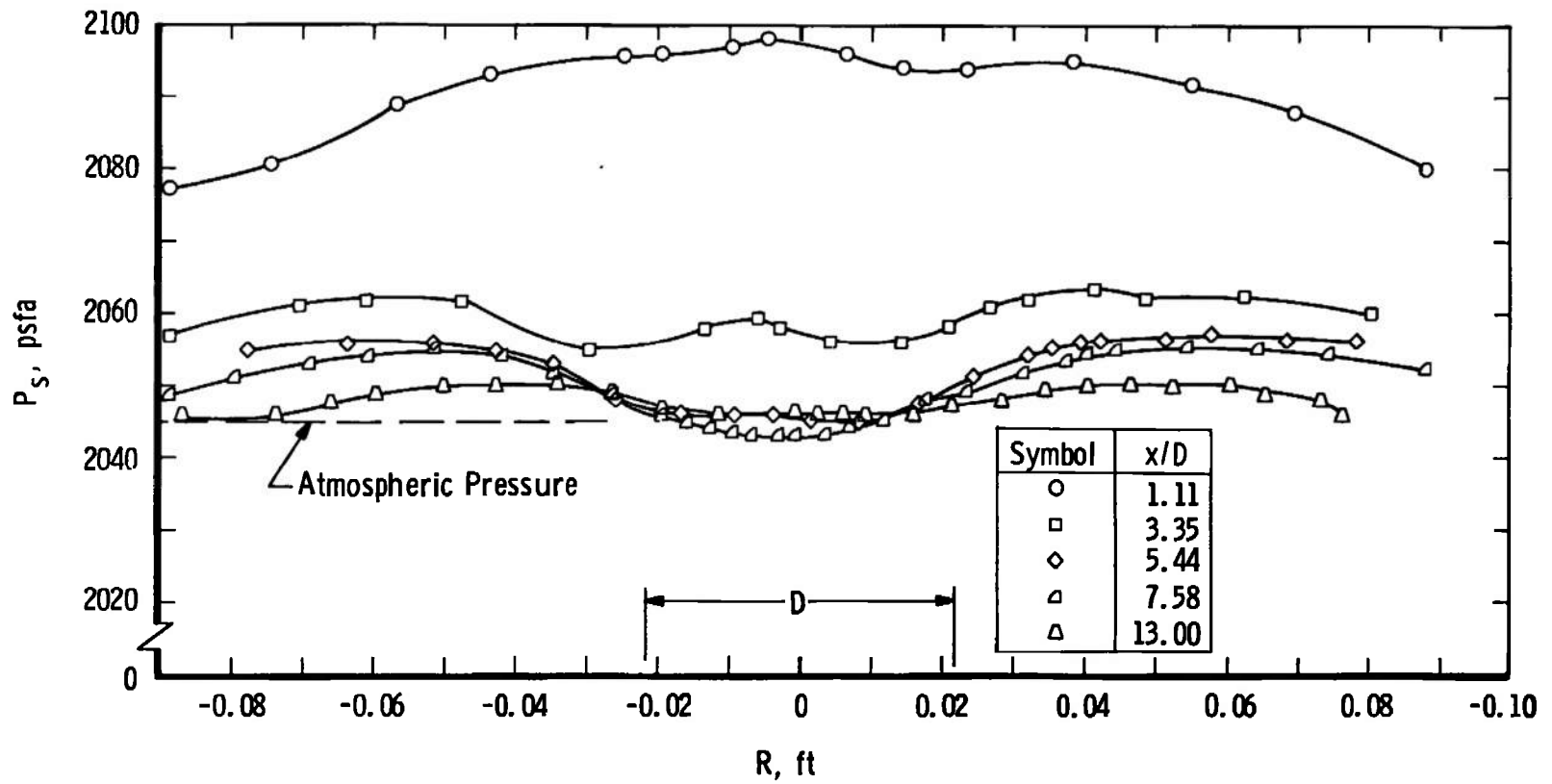


Fig. 21 Static Pressure Profiles for Test II C

TABLE I
TEST CONDITIONS

Test No.	Jet Gas	Outer Stream Gas	u_j/u_o	u_j , ft/sec	P_{tj} , psfa	P_{to} , psfa	T_{tj} , °R	T_{to} , °R
I A	Hydrogen	Air	6.3	3300	3080	2325	550	650
I B	Hydrogen	Air	4.4	3200	3050	2610	550	650
I C	Hydrogen	Air	3.8	3050	2925	2760	550	650
I D	Hydrogen	Air	3.0	2400	2540	2765	550	650
I E	Hydrogen	Air	2.4	1900	2350	2760	550	650
II A	Hydrogen	Air	4.6	3100	2880	2325	550	1050
II B	Hydrogen	Air	3.2	2450	2530	2430	550	1050
II C	Hydrogen	Air	2.5	1950	2330	2435	550	1050
III	Air	Air	2.4	940	3395	2185	550	650

TABLE II
NONDIMENSIONALIZING RADII

Test Number	x, ft	R _{mc} , ft	R _{mu} , ft
I A ↓	0.2224	0.0173	0.0187
	0.2907	0.0196	0.0197
	0.3556	0.0223	0.0220
	0.4292	0.0262	0.0253
	0.5172	0.0321	0.0302
	0.6081	0.0430	0.0344
I B ↓	0.1896	0.0162	0.0177
	0.2710	0.0220	0.0213
	0.3577	0.0273	0.0255
	0.4403	0.0331	0.0306
	0.5212	0.0365	0.0333
	0.6047	0.0400	0.0367
I C ↓	0.1936	0.0147	0.0154
	0.2735	0.0217	0.0201
	0.3252	0.0250	0.0230
	0.3619	0.0266	0.0240
	0.4060	0.0291	0.0260
	0.4452	0.0309	0.0273
I D ↓	0.1208	0.0142	0.0162
	0.1659	0.0178	0.0143
	0.2343	0.0185	0.0172
	0.2859	0.0207	0.0186
	0.3521	0.0241	0.0212
	0.4168	0.0273	0.0281
	0.4445	0.0286	0.0246
	0.4847	0.0295	0.0258
	0.5489	0.0307	0.0267
I E ↓	0.2028	0.0143	0.0132
	0.2283	0.0176	0.0152
	0.2876	0.0196	0.0162
	0.3213	0.0217	0.0177
	0.3689	0.0229	0.0172
	0.4478	0.0245	0.0199
	0.5337	0.0276	0.0200

TABLE II (Concluded)

Test Number	x, ft	R _{mc} , ft	R _{mu} , ft
II A ↓	0.1911	0.0198	0.0216
	0.2460	0.0202	0.0203
	0.2644	0.0210	0.0211
	0.3473	0.0237	0.0226
	0.4332	0.0286	0.0264
	0.5158	0.0320	0.0297
	0.5992	0.0340	0.0318
II B ↓	0.1705	0.0169	0.0196
	0.1890	0.0182	0.0196
	0.2161	0.0192	0.0192
	0.2451	0.0215	0.0200
	0.2735	0.0231	0.0208
	0.3128	0.0241	0.0217
	0.3694	0.0273	0.0243
	0.4191	0.0297	0.0258
	0.5178	0.0332	0.0282
II C ↓	0.2019	0.0172	0.0178
	0.2397	0.0195	0.0180
	0.2906	0.0221	0.0187
	0.4377	0.0270	0.0232
	0.5178	0.0275	0.0228
III ↓	0.2826	N/A ↓	0.0251
	0.3055		0.0262
	0.3323		0.0266
	0.3608		0.0269
	0.4002		0.0269
	0.4413		0.0273
	0.4822		0.0280
	0.5248		0.0288
	0.5972		0.0315

APPENDIX III RELATIVE ERROR ANALYSIS

The measured parameters are listed in Table III-I with an estimate of the measuring accuracy.

In the following error equations*, γ is assumed to be a constant. This assumption is justified by considering that the maximum deviation of γ is from 1.4 to 1.7 percent. This deviation was obtained when the outer airstream was heated to 1050°R.

The relative error equation for enthalpy is

$$\frac{dH}{H} = \frac{C}{\left[C + (1 - C) \frac{H_a}{H_h} \right]} \frac{dH_h}{H_h} + \frac{(H_h - H_a)}{\left[H_h + (1 - C) \frac{H_a}{C} \right]} \frac{dC}{C} + \frac{(1 - C)}{\left[\frac{CH_h}{H_a} + (1 - C) \right]} \frac{dH_a}{H_a}$$

The relative error equation for density is

$$\frac{d\rho}{\rho} = \frac{-dT_t}{T_t} + \frac{\gamma - 1}{\gamma} \frac{dP_t}{P_t} + \frac{1}{\gamma} \frac{dP_s}{P_s} - \frac{(\omega_o - \omega_j) C}{(\omega_o - \omega_j)C + \omega_j} \frac{dC}{C}$$

The relative error equation for velocity is

$$\frac{du}{u} = \frac{1}{2} \frac{dT_t}{T_t} + \left[\frac{T_t}{T_s \gamma M^2} - \frac{\gamma - 1}{2\gamma} \right] \frac{dP_t}{P_t} + \frac{\gamma (\omega_o - \omega_j) C}{(\omega_o - \omega_j) C + \omega_j} \frac{dC}{C} + \left[\frac{\gamma - 1}{2\gamma} - \frac{1}{\gamma M^2} \frac{T_t}{T_s} \right] \frac{dP_s}{P_s}$$

These equations are written for the mixing flow field conditions. They are applicable for the plenum conditions if the appropriate measured quantities are used.

The terms (R_{mc} , R_{mu} , and R_B) are selected from curve fits and do not depend on the accuracy of the measurement of a single point. It is estimated that they are accurate within ± 3 percent.

The relative error equation for ψ_u is

$$\frac{d\psi_u}{\psi_u} = \frac{u}{u - u_o} \frac{du}{u} - \frac{u_c}{u_c - u_o} \frac{du_c}{u_c} + \frac{u_o (u - u_c)}{(u - u_o) (u_c - u_o)} \frac{du_o}{u_o}$$

*To obtain these equations, the equation for the parameter in question is differentiated, and the result is divided by the original expression. The equations for enthalpy, density, and velocity are contained in Appendix IV.

The parameter (ψ_u) is susceptible to large inaccuracies when u approaches u_o near the outer edge of the mixing zone. For this reason, the uncertainty of the data for $R/R_{mu} > \pm 2.5$ is very large, and the data are omitted from the curves presented. The same situation is true for the composition data. The low composition measurements, which have large measurement uncertainty, occur at the outer edge of the mixing zone. Consequently, the data for $R/R_{mc} > \pm 2.5$ are omitted.

TABLE III-I
MEASUREMENT ACCURACY

Parameter	Estimate of Measurement Accuracy, Percent of Absolute Value	Range
P_s	± 1	All Considered
P_t	± 1	All Considered
P_{tj}	± 1	All Considered
P_{to}	± 1	All Considered
T_t	± 0.5	All Considered
T_{tj}	± 0.5	All Considered
T_{to}	± 0.5	All Considered
R	± 2	All Considered
x	± 2	All Considered
C	± 2	>0.05 to 1.0
C	± 10	>0.02 to 0.05
C	± 50	>0.01 to 0.02
C	Uncertain	0.0 to 0.01

APPENDIX IV CALCULATION PROCEDURE

Gas mixture properties were calculated from the measured parameters by using the relationships listed below. Tables of specific heat and enthalpy for air and hydrogen over a temperature range from 500 to 1500°R were put into the computer program. The information was taken from gas tables (Ref. 10).

Jet Mass Flow

$$\dot{W}_j = K_j \frac{P_{TH}}{\sqrt{T_{TH}}}$$

where K_j , a dimensional proportionality constant, is furnished from the orifice calibration.

Total Enthalpy

$$H = CH_h + (1 - C) H_a$$

where H_h and H_a are obtained from the enthalpy table for the measured total temperature.

$$\omega = \frac{\omega_j \omega_o}{C(\omega_o - \omega_j) + \omega_j}$$

Specific Heat

$$C_p = C(C_{pj}) + (1 - C) C_{po}$$

where C_{pj} and C_{po} are selected from the table of specific heats for the measured total temperature.

Ratio of Specific Heats

$$\gamma = \frac{C_p \omega}{C_p \omega - R}$$

Mach Number

$$M^2 = \frac{2}{\gamma - 1} \left[\frac{P_s}{P_t} \frac{\gamma - 1}{\gamma} \right] - 1$$

Static Temperature

$$T_s = T_t \left(1 + \frac{\gamma - 1}{2} M^2 \right)^{-1}$$

Density

$$\rho = \frac{P_s \omega}{R T_s}$$

Velocity

$$u = \sqrt{\gamma (P_s / \rho) M^2}$$

APPENDIX V CONSISTENCY CHECK

The hydrogen mass flow was calculated at each axial station where data were obtained. The mass flux was numerically integrated to a specified control volume. The expression for the calculation is

$$\dot{W} = 2\pi \int_0^{R^*} \rho u C R dR$$

Numerous control volume sizes were tested. As long as the control volume was large enough to extend to a location where the hydrogen concentration was negligible, its size had little effect on the value obtained from the integration. The ratio of the values obtained from the integration (\dot{W}) to the hydrogen flow measured by metering orifice (\dot{W}_j) is shown in Figs. V-1 and V-2. The results are reasonably good, considering that the hydrogen mass flow is only from 0.4 to 1.7 percent of the total mass flow in the mixing system.

A possible reason for the low calculated mass flow is that the probe was not on the vertical centerline when the data were recorded. There was no fixed reference point from which the vertical position measurements were made; therefore, only vertical position data recorded during the same test run may be compared. The data for tests I A and I D were recorded during the same test run; the vertical position variations of tests I A and I D were 0.050 and 0.070 in., respectively. Test I A gave good agreement on the consistency check, but test I D gave low values of mass flow calculated by the integration technique.

The following calculation was made to get an estimate of the effect of probe position error: The data from test I A were assumed to be on the true vertical centerline, and the integration was made for a traverse 0.060 in. below the centerline. The calculated change attributable to the assumed probe alignment is from 2 to 5 percent, which is too small to account for the low values obtained during test I D.

The tests in Series II showed a trend toward high values of integrated mass flow near the nozzle exit plane; then the values decreased with increasing axial distance. The reason for this result is not known.

Even though the consistency check does give poor results for some tests on an absolute basis, the repeatability of the data is very good. All other data from tests which gave poor consistency checks agree well with the results for tests which gave good consistency checks. This fact is illustrated by the figures which present data for more than one test. The data appear to be better than the consistency check indicates.

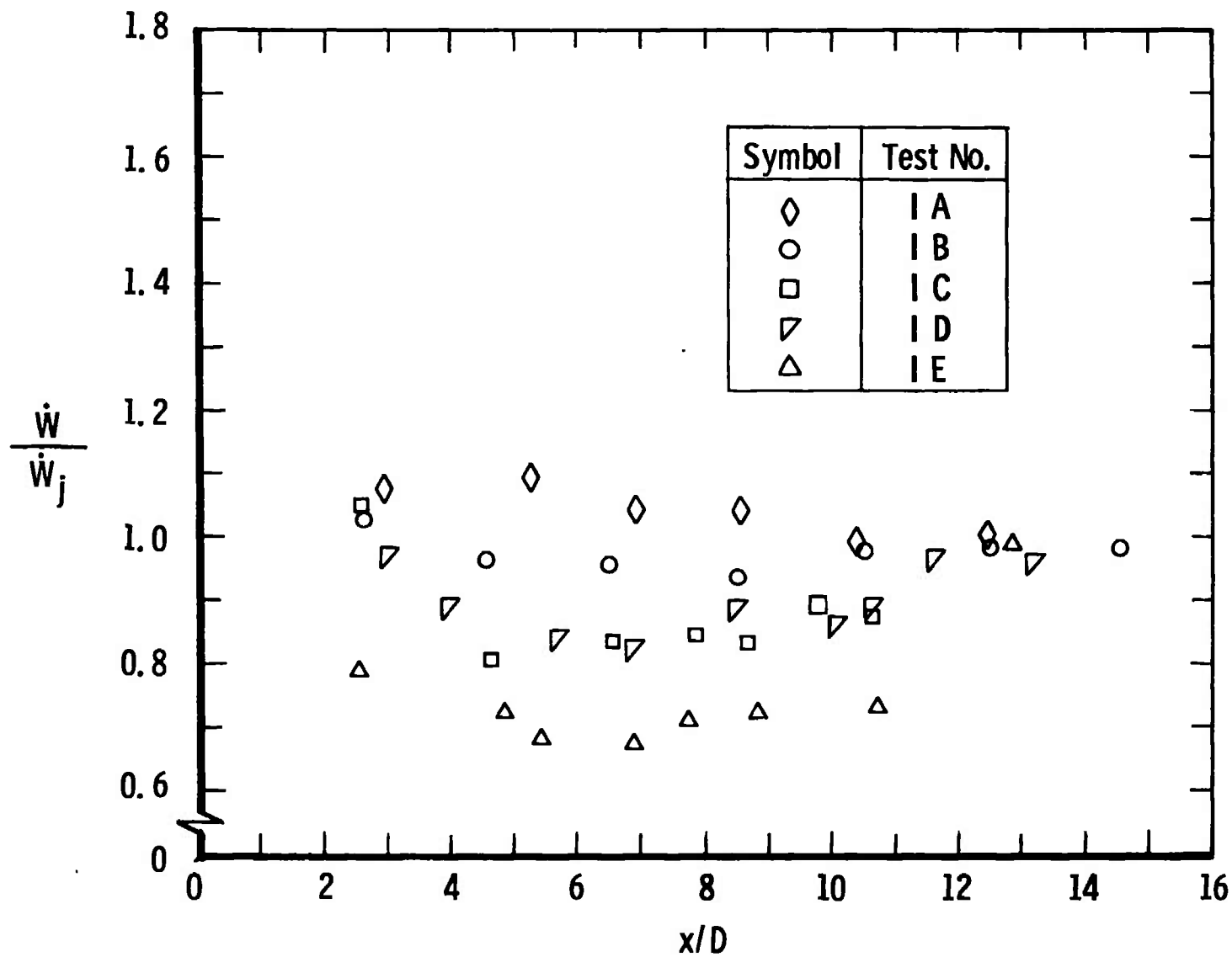


Fig. V-1 Consistency Check for Series I Tests

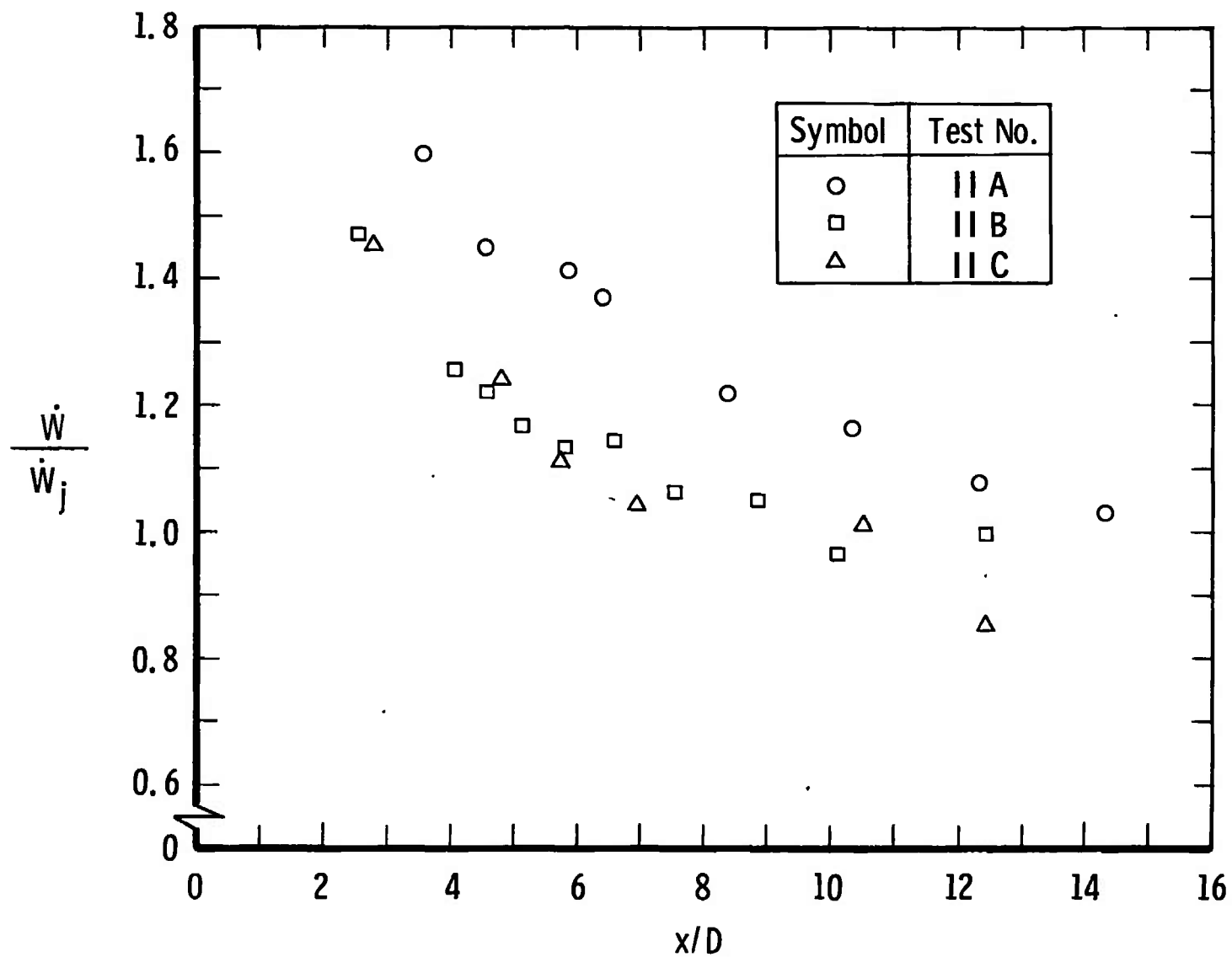


Fig. V-2 Consistency Check for Series II Tests

APPENDIX VI EXPERIMENTAL DATA

Nomenclature for Tabulated Experimental Data

C	Mass fraction of jet gas
CP	Specific heat at constant pressure
CPJ	Constant pressure specific heat of jet gas
CPO	Constant pressure specific heat of outer stream gas
GAM	Ratio of specific heats
GAMJ	Ratio of specific heats of jet gas
GAMO	Ratio of specific heats of outer stream gas
H	Total enthalpy
HJ	Total enthalpy of jet gas
HO	Total enthalpy of outer stream gas
MW	Molecular weight
MWJ	Molecular weight of jet gas
PS	Static pressure
PT	Total pressure
PTJ	Total pressure of jet gas
PTO	Total pressure of outer stream gas
R	Radial distance
RHO	Density
RHOJ	Density of jet gas
RHOO	Density of outer stream gas
RS	Control volume radius
TS	Static temperature
TSJ	Static temperature of jet gas
TSO	Static temperature of outer stream gas
TT	Total temperature
TTJ	Total temperature of jet gas
TTO	Total temperature of outer stream gas

U	Velocity
UJ	Velocity of jet gas
UO	Velocity of outer stream gas
WJ	Jet mass flow as measured by a choked orifice
X	Axial distance

TEST NUMBER - 1 A

Jet Gas – Hydrogen
Outer Stream Gas – Air

[illegible]

	C	CP18704 01	GAN	RM	PS18511	1514	Amis/Am/11 01	U11/US21	W18704/01	Y1811	Y18511
6.677E-02	1.6600E-04	2.314E-01	1.398E	2.891E 01	2.205E 03	6.221E 02	6.169E 02	5.280E 02	1.947E 02	6.452E 02	2.812E 03
7.117E-02	2.510E-04	2.314E-01	1.398E	2.887E 01	2.055E 03	6.257E 02	6.162E 02	5.264E 02	1.950E 02	6.459E 02	2.830E 03
5.934E-02	6.666E-04	2.639E-01	1.398E	2.984E 01	2.205E 03	6.216E 02	6.120E-02	5.264E 02	1.916E 02	6.442E 02	2.750E 03
6.104E-02	2.646E-03	2.684E-01	1.398E	2.805E 01	2.205E 03	6.159E 02	6.052E-02	5.305E 02	1.976E 02	6.464E 02	2.860E 03
6.585E-02	1.537E-02	2.699E-01	1.397E	2.841E 01	2.204E 03	5.921E 02	5.170E-02	5.045E 02	1.796E 02	6.142E 02	2.734E 03
6.305E-02	4.085E-02	3.945E-01	1.401E	1.718E 01	2.203E 03	5.658E 02	4.053E-02	4.641E 02	2.328E 02	6.842E 02	2.849E 03
3.213E-02	1.005E-01	5.907E-01	1.402E	1.230E 01	2.203E 03	5.658E 02	2.985E-02	5.89E 02	3.370E 02	6.743E 02	2.691E 03
2.571E-02	1.768E-01	5.313E-01	1.403E	8.613E 00	2.202E 03	5.127E 02	2.114E-02	1.149E 01	4.477E 02	6.855E 02	2.847E 03
1.974E-02	2.768E-01	1.122E 00	1.403E	6.153E 00	2.201E 03	5.215E 02	1.530E-02	1.506E 01	6.206E 02	6.816E 02	2.699E 03
1.140E-02	4.179E-01	6.645E 00	1.401E	4.226E 00	2.200E 03	5.097E 02	1.071E-02	2.046E 01	6.923E 02	6.913E 02	2.611E 03
8.267E-03	5.362E-01	1.632E 01	1.401E	3.570E 00	2.199E 03	5.097E 02	7.274E-03	1.907E 01	6.907E 02	6.913E 02	2.611E 03
6.267E-03	3.221E-01	1.632E 00	1.402E	1.570E 00	2.199E 03	5.040E 02	1.145E-03	2.385E 01	1.070E 05	6.927E 02	2.925E 03
2.684E-03	5.623E-01	2.031E 00	1.403E	1.401E 00	1.660E 02	5.020E 02	8.714E-03	2.652E 03	1.124E 01	6.930E 02	2.949E 03
4.681E-04	5.714E-01	2.016E 00	1.403E	3.425E 00	1.992E 03	5.012E 02	6.816E-03	2.497E 03	1.251E 01	6.930E 02	2.684E 03
1.267E-03	6.564E-01	2.000E 00	1.403E	3.444E 00	1.947E 03	4.013E 02	6.857E-03	2.478E 03	1.109E 01	6.924E 02	2.672E 03
6.267E-03	4.284E-01	1.920E 00	1.403E	3.590E 00	1.993E 03	5.030E 02	6.208E-03	2.260E 05	1.063E 01	6.918E 02	6.920E 03
1.603E-02	2.910E-01	1.585E 00	1.403E	6.682E 00	2.007E 03	5.118E 02	1.177E-02	1.907E 01	6.163E 02	6.607E 02	2.747E 03
2.217E-02	2.410E-01	1.010E 00	1.403E	6.714E 00	2.011E 03	5.234E 02	1.686E-02	1.894E 01	5.692E 02	6.613E 02	2.561E 03
2.729E-02	1.590E-01	6.795E 01	1.402E	1.616E 01	2.022E 03	5.167E 02	2.475E-02	1.978E 02	3.907E 02	6.760E 02	2.611E 03
3.747E-02	6.129E-02	4.101E 01	1.401E	1.590E 01	2.034E 03	5.616E 02	1.703E-02	2.299E 02	2.545E 02	6.760E 02	2.611E 03
4.433E-02	2.307E-02	5.192E 01	1.400E	1.676E 01	2.070E 03	5.792E 02	4.972E-03	2.592E 02	3.080E 02	6.760E 02	2.611E 03
5.932E-02	4.340E-02	5.192E 01	1.400E	2.704E 01	2.072E 03	6.152E 02	6.960E-02	5.325E 02	5.97E 02	6.376E 02	2.837E 03
7.379E-02	2.371E-02	7.264E-01	1.397E	2.677E 01	2.054E 03	6.225E 02	6.161E-02	5.271E 01	1.954E 02	6.654E 02	2.812E 03
9.731E-02	2.445E-02	2.410E-01	1.398E	2.664E 01	2.053E 03	6.217E 02	6.155E-02	6.264E 02	1.949E 02	6.444E 02	2.829E 03
1.201E-01	2.679E-04	2.415E-01	1.395E	2.887E 01	2.053E 03	6.114E 02	6.275E-02	4.987E 02	1.517E 02	6.519E 02	2.866E 03

[illegible]

RI P 31	C	CP18TU/P RI	GAM	Hu	P51P351	7514	OWD104P7T 31	U17725EC1	H10TU/RI	Y11E1	P17P/RI
1.025F-01	3.265E-04	2.418E-01	1.398E 00	2.654E 01	2.046E 01	0.153F 02	0.200E-02	5.220F 02	1.032E 02	6.370E 02	2.681E 03
7.027E-02	2.265E-04	2.418E-01	1.398E 00	2.654E 01	2.046E 01	0.600E 03	0.172E-02	5.241E 02	6.417E 02	6.417E 02	2.681E 03
7.027E-02	2.265E-04	2.418E-01	1.398E 00	2.654E 01	2.046E 01	0.172E-02	0.222E-02	5.241E 02	6.417E 02	6.417E 02	2.681E 03
4.495E-02	4.064E-04	2.427E-01	1.399E 00	2.614F 01	2.045E 03	0.213E 02	0.147E-02	5.261E 02	6.455E 02	6.455E 02	2.680E 03
3.259E-02	6.141E-03	2.420E-01	1.398E 00	2.477E 01	2.050E 01	0.092F 02	5.812E-02	5.575E 02	6.132E 02	6.114E 02	2.324E 03
4.512F-02	3.051F-02	1.318E-01	1.400E 00	2.058E 01	2.042E 03	5.000F 02	0.600E-02	6.134E 02	2.015E 02	6.022F 02	2.330E 03
3.658E-02	7.474E-02	4.967F-01	1.401E 00	1.102E 01	2.072E 03	5.54F 02	1.325E-02	7.955E 02	2.854E 02	6.401E 02	2.370E 03
2.495E-02	1.936E-01	0.625E-01	1.402F 00	5.045E 01	2.024E 05	5.423E 02	2.526E-02	8.984E 02	3.716E 02	6.717E 02	2.634E 03
2.440F-02	1.936E-01	0.615E-01	1.402F 00	5.045E 01	2.024E 05	5.423E 02	2.077E-02	1.164F 02	5.952E 02	5.952E 02	2.634E 03
1.542E-01	1.542E-01	1.542E-01	1.403E 00	6.464E 01	2.012F 00	5.250E 02	0.000E-02	0.587E 02	6.464E 02	6.464E 02	2.597E 03
1.145E-02	3.273E-01	1.275E 00	1.403E 00	5.232E 00	2.004E 03	5.149E 02	1.357E-02	1.714F 03	7.044E 02	5.451F 02	2.701F 03
6.309F-03	3.273E-01	1.275E 00	1.403E 00	5.232E 00	2.002F 03	5.153E 02	1.217E-02	1.870E 03	7.644F 02	5.635E 06	2.771E 03
3.470E-05	1.613E-01	1.477F 00	1.401F 00	6.624E 00	2.001E 03	5.148E 02	1.169F-02	1.850F 00	8.283E 02	6.304E 02	2.790E 03
5.095E-04	0.073E-01	1.527F 00	1.403F 00	6.624E 00	7.003E 03	5.13E 02	1.145E-02	2.009E 03	8.501E 02	6.634E 02	2.611E 03
-2.401F-03	1.703E-01	1.484E 00	1.635E 00	4.656E 00	0.000E 01	5.137E 02	1.174E-02	1.848F 03	8.247E 02	6.965E 02	2.813E 03
-1.701E-03	1.703E-01	1.484E 00	1.635E 00	4.656E 00	0.000E 01	5.137E 02	1.270E-02	1.848F 03	8.247E 02	6.965E 02	2.813E 03
-1.161E-02	1.703E-01	1.484E 00	1.635E 00	4.656E 00	0.000E 01	5.137E 02	1.270E-02	1.848F 03	8.247E 02	6.965E 02	2.813E 03
-2.214E-02	1.021E-01	9.004F-01	1.403E 00	7.411E 00	2.015E 03	5.501F 02	1.848E-02	1.257E 03	5.054E 02	6.657E 02	2.517E 03
-2.764E-02	1.529E-01	7.273F-01	1.402E 00	5.917E 00	2.021E 03	5.377E 02	2.016E-02	1.641F 03	6.077E 02	6.400E 02	2.466E 03
-1.640E-02	0.262E-02	4.349E-01	1.402E 00	1.204F 01	2.030E 03	5.510F 02	1.008E-02	0.313E 02	5.951E 02	6.777E 02	2.361E 03
-6.274E-02	4.405E-02	3.737E-01	1.400F 00	1.744F 01	2.033E 03	5.700F 02	4.081E-02	6.739E 02	2.310E 02	5.930E 02	2.361E 03
-5.291E-02	1.034F-02	2.755F-01	1.190E 00	2.521F 01	2.047E 03	6.034F 02	5.548E-02	5.504F 02	1.711E 02	6.255E 02	2.321E 03
-6.337E-02	1.554E-01	2.655E-01	1.319E 00	4.617E 01	2.047E 03	6.034F 02	5.548E-02	5.504F 02			2.321E 03
-1.959E-01	1.959E-01	1.959E-01	1.404E 00	7.754E 01	2.052E 03	7.23E 02	0.157E-02	1.72F 06	5.50E 02	6.461E 02	2.640E 03
-1.719E-01	0.957F-04	4.422F-01	1.394E 00	2.080F 01	2.050E 03	6.155E 02	0.578E-02	0.227E 02	1.42E 02	6.010E 02	2.324E 03
-1.104E-01	4.155E-04	2.418E-01	1.398E 00	2.441F 01	2.053E 03	6.037E 02	0.353E-02	6.255F 02	1.48E 02	6.166E 02	2.200E 03

[illegible]

WFL	C	CP1870/B 1	36W	Wd	P1875F1	1181	RM260/FET 1	U1875/FET 1	H1875/FET 1	V181	V1875F1
9.181E-06	6.400E-05	1.300E-01	2.150E-01	2.007E-01	6.090E-02	4.211E-02	5.917E-02	5.917E-02	5.917E-02	6.400E-02	6.400E-02
7.644E-02	7.737E-04	1.300E-01	2.669E-01	2.051E-01	6.220E-02	4.122E-02	5.806E-02	5.806E-02	5.806E-02	7.331E-02	7.331E-02
6.123E-02	6.002E-03	1.300E-01	2.458E-01	2.040E-01	6.000E-02	4.777E-02	5.433E-02	5.433E-02	5.433E-02	6.123E-02	6.123E-02
5.307E-02	1.817E-02	2.980E-01	2.351E-01	2.045E-01	5.931E-02	4.201E-02	5.754E-02	5.754E-02	5.754E-02	6.152E-02	6.152E-02
4.532E-02	4.532E-02	1.500E-01	1.779E-01	2.039E-01	5.513E-02	4.044E-02	5.703E-02	5.703E-02	5.703E-02	6.040E-02	6.040E-02
3.101E-02	7.816E-02	4.997E-01	1.601E-01	1.610E-01	2.032E-01	5.574E-02	4.816E-02	4.797E-02	4.816E-02	5.811E-02	5.811E-02
2.649E-02	1.249E-01	6.382E-01	1.402E-01	1.055E-01	2.026E-01	5.454E-02	4.409E-02	4.705E-02	4.681E-02	5.234E-02	5.234E-02
2.194E-02	1.594E-01	7.581E-01	1.422E-01	6.351E-01	2.021E-01	5.334E-02	4.207E-02	4.681E-02	4.681E-02	5.234E-02	5.234E-02
1.812E-02	1.812E-01	1.400E-01	1.400E-01	1.400E-01	2.015E-01	5.150E-02	4.007E-02	4.224E-02	4.735E-02	5.292E-02	5.292E-02
1.242E-02	2.842E-05	5.638E-01	1.403E-01	6.942E-01	2.014E-01	5.249E-02	1.716E-02	1.408E-02	6.870E-02	6.870E-02	6.870E-02
7.541E-02	2.737E-01	1.060E-01	1.403E-01	6.524E-01	2.012E-01	5.268E-02	1.615E-02	1.409E-02	6.870E-02	6.870E-02	6.870E-02
7.101E-03	2.743E-01	1.114E-01	1.403E-01	6.207E-01	2.011E-01	5.257E-02	1.437E-02	1.545E-02	6.264E-02	6.695E-02	6.695E-02
-1.271E-03	2.765E-01	1.121E-01	1.403E-01	6.180E-01	2.011E-01	5.255E-02	1.528E-02	1.570E-02	6.263E-02	6.694E-02	6.694E-02
-4.013E-03	2.777E-01	1.125E-01	1.403E-01	6.147E-01	2.011E-01	5.253E-02	1.523E-02	1.568E-02	6.259E-02	6.688E-02	6.693E-02
-6.949E-03	2.802E-01	1.069E-01	1.403E-01	6.484E-01	2.012E-01	5.263E-02	1.501E-02	1.515E-02	6.261E-02	6.695E-02	6.695E-02
-1.017E-02	2.817E-01	1.017E-01	1.403E-01	6.452E-01	2.012E-01	5.262E-02	1.476E-02	1.545E-02	6.263E-02	6.694E-02	6.694E-02
-1.171E-02	1.940E-01	8.112E-01	1.402E-01	6.033E-01	2.017E-01	5.334E-02	1.407E-02	1.233E-02	4.825E-02	6.870E-02	6.870E-02
-2.369E-02	1.342E-01	6.440E-01	1.402E-01	1.012E-01	2.023E-01	4.434E-02	2.448E-02	1.022E-02	3.848E-02	5.721E-02	5.721E-02
-3.463E-02	6.451E-02	5.068E-01	1.401E-01	1.350E-01	2.072E-01	5.557E-02	2.101E-02	6.051E-02	2.626E-02	5.812E-02	5.770E-02
-4.762E-02	3.473E-02	3.645E-01	1.400E-01	5.940E-01	2.041E-01	5.790E-02	4.468E-02	6.327E-02	2.133E-02	6.022E-02	5.732E-02
-5.911E-02	1.147E-02	2.773E-01	5.790E-01	2.122E-01	2.047E-01	6.067E-02	5.969E-02	5.511E-02	1.723E-02	6.622E-02	6.331E-02
-7.761E-02	1.147E-02	2.773E-01	5.790E-01	6.852E-01	2.047E-01	6.067E-02	5.969E-02	5.511E-02	1.723E-02	6.622E-02	6.331E-02
-1.126E-02	2.355E-01	1.171E-01	1.399E-01	2.880E-01	2.051E-01	6.200E-02	4.170E-02	5.234E-02	1.544E-02	6.429E-02	6.296E-02
-1.194E-01	4.4591E-02	1.4529E-01	1.499E-01	2.879E-01	1.951E-01	6.957E-02	4.949E-02	6.804E-02	1.504E-01	6.249E-02	6.249E-02

01ET	031P7	0410M/SEC1	0410M/MOLE1	05101	05101E1	0610TU/0 01	06101	0610M/PP 31	0610P/SEC1
0.1721E-01	0.1390E-02	2.3355E-02	2.0160E 00	0.4972E 02	1.0016E 03	0.4193E 00	1.4067E 00	0.4947E-01	0.2720E 00
01ET	031P7	050101	050101/01	050101	050101E1	0610TU/0 01	06101	0610M/PP 31	0610P/SEC1
1.6344E 01	0.9320E 02	0.2417E 02	1.3401E 02	0.4715E 02	2.2434E 03	2.4000E-01	1.3970E 00	0.1497E-00	0.2666E 02
01ET	C	0610TU/0 01	06101	06101E1	0610TU/0 01	06101	0610M/PP 31	0610P/SEC1	0610P/SEC1
1.000E-01	4.247E-04	2.420E-01	1.390E 00	2.850E 01	2.042E 03	0.103E 02	0.235E-02	0.053E 02	1.319E 02
7.659E-02	1.693E-03	2.461E-01	1.390E 00	2.853E 01	2.044E 03	0.140E 02	0.096E-02	0.290E 02	1.961E 02
6.523E-02	0.499E-03	2.674E-01	1.390E 00	2.601E 01	2.047E 03	0.046E 02	0.700E-02	0.470E 02	1.666E 02
1.494E-02	2.555E-02	1.150E-01	1.400E 00	2.203E 01	2.049E 03	0.877E 02	0.955E-02	0.941E 02	1.909E 02
0.580E-02	0.245E-02	0.077E-01	1.401E 00	1.703E 01	2.037E 03	0.890E 02	0.955E-02	0.941E 02	2.351E 02
3.704E-02	7.075E-02	0.915E-01	1.401E 00	1.411E 01	2.033E 03	1.591E 02	0.321E-02	0.950E 02	2.839E 02
3.100E-02	1.011E-01	0.426E-01	1.401E 00	1.232E 01	2.029E 03	1.524E 02	0.249E-02	0.627E 02	0.400E 02
2.324E-02	1.314E-01	0.592E-01	1.402E 00	1.051E 01	2.028E 03	1.444E 02	0.299E-02	1.012E 03	1.743E 02
1.403E-02	1.504E-01	1.198E-01	1.402E 00	0.621E 00	2.024E 03	1.413E 02	0.326E-02	1.073E 03	0.075E 02
1.009E-02	1.804E-01	0.154E-01	1.402E 00	0.490E 00	2.022E 03	1.373E 02	0.067E-02	1.203E 01	0.401E 02
1.077E-03	1.847E-01	0.289E-01	1.402E 00	0.331E 00	2.020E 03	1.304E 02	0.034E-02	1.213E 03	0.479E 02
-1.145E-03	1.937E-01	0.577E-01	1.402E 00	0.070E 00	2.020E 03	1.351E 02	1.972E-02	1.268E 03	0.437E 02
-0.024E-03	1.812E-01	0.177E-01	1.402E 00	0.446E 00	2.021E 03	1.369E 02	0.062E-02	1.217E 03	0.414E 02
-1.503E-02	1.603E-01	0.780E-01	1.402E 00	0.190E 00	2.023E 03	1.394E 02	0.232E-02	1.131E 03	0.254E 02
-2.321E-02	1.917E-01	0.501E-01	1.402E 00	1.049E 01	2.024E 03	1.551E 02	0.244E-02	0.994E 02	1.745E 02
-3.707E-02	1.033E-01	0.597E-01	1.402E 00	1.217E 01	2.029E 03	1.514E 02	0.094E-02	0.601E 02	1.256E 02
-1.947E-02	0.911E-02	0.600E-01	1.401E 00	1.509E 01	2.035E 03	1.523E 02	0.326E-02	0.754E 02	0.674E 02
-3.174E-02	0.402E-02	0.491E-01	1.400E 00	1.911E 01	2.042E 03	1.415E 02	0.526E-02	0.251E 02	0.097E 02
-0.912E-02	1.001E-02	2.727E-01	1.399E 00	2.533E 01	2.044E 03	0.041E 02	0.581E-02	1.313E 02	1.700E 02
-7.705E-02	1.999E-03	2.659E-01	1.399E 00	2.625E 01	2.047E 03	0.103E 02	0.033E-02	1.249E 02	1.571E 02
-0.447E-02	0.015E-04	2.420E-01	1.399E 00	2.852E 01	2.047E 03	0.146E 02	0.211E-02	0.162E 02	1.390E 02
-1.271E-01	0.337E-04	2.410E-01	1.399E 00	2.844E 01	2.047E 03	0.124E 02	0.030E-02	0.368E 02	1.484E 02
0.0017E-01	0.0652E-02	2.033E-02	2.0160E 00	0.4956E 02	1.0017E 03	0.4193E 00	1.4067E 00	0.4947E-01	0.2720E 00
01ET	C	0610TU/0 01	06101	06101E1	0610TU/0 01	06101	0610M/PP 31	0610P/SEC1	0610P/SEC1
0.100E-02	1.107E-03	2.443E-01	1.399E 00	2.852E 01	2.041E 03	0.107E 02	0.174E-02	1.003E 02	1.303E 02
7.931E-02	0.001E-03	2.150E-01	1.399E 00	2.682E 01	2.044E 03	0.079E 02	0.838E-02	1.045E 02	1.623E 02
0.057E-02	1.203E-02	2.816E-01	1.399E 00	2.473E 01	2.044E 03	0.477E 02	0.477E-02	1.036E 02	1.731E 02
0.570E-02	2.803E-02	3.319E-01	1.400E 00	2.099E 01	2.040E 03	0.844E 02	0.735E-02	0.149E 02	1.994E 02
0.745E-02	0.532E-02	0.833E-01	1.400E 00	1.810E 01	2.038E 03	0.747E 02	0.153E-02	0.729E 02	2.272E 02
3.764E-02	1.126E-02	0.677E-01	1.401E 00	1.484E 01	2.033E 03	0.626E 02	0.370E-02	0.719E 02	2.717E 02
3.107E-02	0.500E-02	1.115E-01	1.401E 00	1.344E 01	2.032E 03	0.569E 02	0.202E-02	0.377E 02	2.951E 02
2.212E-02	1.137E-01	0.020E-01	1.402E 00	1.150E 01	2.029E 03	0.504E 02	0.274E-02	0.420E 02	3.440E 02
1.364E-02	1.244E-01	0.498E-01	1.402E 00	1.066E 01	2.027E 03	0.470E 02	0.558E-02	1.013E 03	1.707E 02
7.324E-03	1.610E-01	0.899E-01	1.402E 00	1.004E 01	2.024E 03	0.445E 02	0.419E-02	1.064E 03	0.927E 02
-3.696E-03	1.375E-01	0.787E-01	1.402E 00	1.021E 01	2.028E 03	0.449E 02	0.457E-02	1.067E 03	1.669E 02
-1.109E-02	1.346E-01	0.695E-01	1.402E 00	1.035E 01	2.027E 03	0.452E 02	0.490E-02	1.060E 03	3.812E 02
-2.049E-02	1.154E-01	0.094E-01	1.402E 00	1.137E 01	2.029E 03	0.492E 02	0.718E-02	0.562E 02	1.742E 02
-2.864E-02	0.417E-02	1.407E-01	1.401E 00	1.282E 01	2.031E 03	0.544E 02	0.018E-02	0.617E 02	3.108E 02
-0.828E-02	7.044E-02	0.652E-01	1.401E 00	1.492E 01	2.035E 03	0.631E 02	0.484E-02	0.593E 02	2.702E 02
-5.117E-02	3.777E-02	0.610E-01	1.400E 00	1.925E 01	2.040E 03	0.799E 02	0.392E-02	0.419E 02	2.134E 02
-6.184E-02	1.875E-02	0.021E-01	1.399E 00	2.303E 01	2.042E 03	0.544E 02	0.120E-02	0.782E 02	1.647E 02
-7.232E-02	7.405E-03	2.650E-01	1.399E 00	2.630E 01	2.043E 03	0.677E 02	0.123E-02	0.430E 02	1.657E 02
-0.161E-02	2.934E-03	2.485E-01	1.399E 00	2.806E 01	2.044E 03	0.120E 02	0.044E-02	0.256E 02	1.965E 02
-0.275E-02	1.046E-03	0.442E-01	1.399E 00	2.854E 01	2.044E 03	0.124E 02	0.149E-02	0.111E 00	1.537E 02
-1.277E-01	0.146E-04	2.410E-01	1.399E 00	2.881E 01	2.044E 03	0.007E 02	0.344E-02	0.263E 02	1.481E 02

[illegible]

RIPTI	PSIPTI	WJIAW/SECI	WJIAW/MOLEI	YJIAI	PTIIPSP	CPJIBTU/A	AI	GAMJ	RMJIAW/PT	SI	UIPT/SECI		
5.2122E-01	1.0799E-01	2.2790E-02	2.0160E 00	5.2991E 02	5.0510E 03	5.4121E 00	1.4059E 00	3.6079E-05	5.1690E 03				
WJIAW/PT	SI	YJIAI	PSIPTI	WJIAW/SECI	WJIAW/MOLEI	YJIAI	PTIIPSP	CPJIBTU/A	AI	GAMJ	RMJIAW/PT	SI	UIPT/SECI
1.7811E 03	6.7048E 02	9.4935E 02	1.5351E 02	6.4340E 02	2.6054E 03	2.4081E-01	1.3979E 00	6.3542E-02	7.2914E 02				
RIPTI	C	CPJIBTU/A	AI	GAM	W	PSIPTI	YJIAI	RMJIAW/PT	SI	UIPT/SECI	WJIAW/PT	SI	PTIIPSP
7.773E-02	1.496E-05	2.455E-01	1.394E 00	2.040E 01	2.051E 05	5.418E 02	6.509E-02	7.533E 02	1.550E 02	6.355E 02	2.609E 05		
6.735E-02	5.099E-03	2.569E-01	1.394E 00	2.712E 01	2.031E 03	5.058E 02	6.086E-02	7.427E 02	1.604E 02	6.286E 02	2.602E 05		
6.815E-02	2.918E-02	3.131E-01	1.400E 00	2.044E 01	2.031E 03	5.605E 02	4.488E-02	8.100E 02	1.942E 02	5.997E 02	2.574E 03		
4.407E-02	1.703E-01	3.545E-01	1.400E 00	1.438E 01	2.031E 03	5.452E 02	4.488E-02	6.394E 02	2.110E 02	4.965E 02	2.570E 03		
3.559E-02	5.710E-02	4.224E-01	1.401E 00	1.443E 01	2.031E 03	5.457E 02	5.947E-02	9.112E 02	2.444E 02	5.450E 02	2.588E 03		
2.435E-02	7.343E-02	4.764E-01	1.401E 00	1.462E 01	2.024E 03	5.397E 02	5.556E-02	9.755E 02	7.718E 02	5.797E 02	2.604E 03		
1.417E-02	9.094E-02	4.304E-01	1.402E 00	1.307E 01	2.025E 03	5.354E 02	5.149E-02	1.047E 03	1.020E 02	5.747E 02	2.623E 03		
8.612E-03	1.044E-01	5.747E-01	1.402E 00	1.204E 01	2.022E 03	5.319E 02	2.967E-02	1.118E 03	1.253E 02	5.752E 02	2.659E 03		
-2.504E-03	1.046E-01	5.869E-01	1.402E 00	1.141E 01	2.022E 03	5.312E 02	2.910E-02	1.139E 03	1.324E 02	5.747E 02	2.661E 03		
-1.227E-02	1.022E-01	5.641E-01	1.402E 00	1.224E 01	2.024E 03	5.311E 02	3.004E-02	1.078E 03	1.216E 02	5.757E 02	2.645E 01		
-2.522E-02	5.461E-02	4.132E-01	1.401E 00	1.351E 01	2.027E 03	5.176E 02	3.277E-02	1.014E 03	2.929E 02	5.740E 02	2.611E 03		
-3.517E-02	6.004E-02	4.318E-01	1.401E 00	1.407E 01	2.033E 03	5.461E 02	3.872E-02	7.172E 02	2.497E 02	5.850E 02	2.585E 03		
-6.955E-02	3.441E-02	3.514E-01	1.401E 00	1.977E 01	2.033E 03	5.471E 02	4.441E-02	4.202E 02	2.073E 02	5.945E 02	2.571E 03		
-9.461E-02	1.491E-02	2.945E-01	1.399E 00	2.363E 01	2.033E 03	5.717E 02	5.448E-02	7.552E 02	1.784E 02	6.107E 02	2.576E 05		
-6.744E-02	1.141E-02	2.803E-01	1.399E 00	2.477E 01	2.045E 03	5.946E 02	4.053E-02	7.127E 02	1.620E 02	6.247E 02	2.596E 03		
-9.224E-02	1.459E-03	2.400E-01	1.395E 00	2.814E 04	2.042E 03	5.933E 02	4.315E-02	7.259E 02	1.554E 02	6.341E 02	2.607E 03		
RIPTI	PSIPTI	WJIAW/SECI	WJIAW/MOLEI	YJIAI	PTIIPSP	CPJIBTU/A	AI	GAMJ	RMJIAW/PT	SI	UIPT/SECI		
6.0479E-01	1.1757E-01	2.2783E-02	2.0160E 00	5.2971E 02	5.0505E 03	5.4121E 00	1.4059E 00	5.6178E-05	5.1736E 03				
WJIAW/PT	SI	YJIAI	PSIPTI	WJIAW/SECI	WJIAW/MOLEI	YJIAI	PTIIPSP	CPJIBTU/A	AI	GAMJ	RMJIAW/PT	SI	UIPT/SECI
1.7808E 03	5.7072E 02	9.4902E 02	1.5351E 02	6.4340E 02	2.6059E 03	2.4082E-01	1.3975E 00	6.5629E-02	7.2578E 02				
RIPTI	C	CPJIBTU/A	AI	GAM	W	PSIPTI	YJIAI	RMJIAW/PT	SI	UIPT/SECI	WJIAW/PT	SI	PTIIPSP
9.139E-02	1.399E-04	2.433E-01	1.395E 00	2.085E 01	2.036E 03	5.881E 02	6.420E-02	7.013E 02	1.520E 02	6.245E 02	2.610E 03		
7.435E-02	1.466E-03	2.517E-01	1.396E 00	2.769E 01	2.036E 03	5.869E 02	6.217E-02	7.272E 02	1.572E 02	6.289E 02	2.594E 03		
6.941E-02	7.014E-03	2.659E-01	1.399E 00	2.620E 01	2.036E 03	5.811E 02	5.441E-02	7.402E 02	1.643E 02	6.273E 02	2.588E 03		
5.942E-02	1.547E-02	2.902E-01	1.399E 00	2.394E 01	2.036E 03	5.719E 02	5.526E-02	7.604E 02	1.761E 02	6.116E 02	2.577E 05		
4.534E-02	2.504E-02	5.511E-01	1.400E 00	1.973E 01	2.035E 03	5.574E 02	4.676E-02	4.279E 02	2.074E 02	5.944E 02	2.578E 05		
5.445E-02	5.305E-02	4.097E-01	1.401E 00	1.495E 01	2.032E 03	5.483E 02	4.064E-02	4.011E 02	2.342E 02	5.874E 02	2.592E 05		
2.273E-02	7.104E-02	4.649E-01	1.401E 00	1.486E 01	2.029E 03	5.414E 02	3.602E-02	4.767E 02	2.687E 02	5.824E 02	2.614E 05		
9.441E-01	8.349E-02	5.159E-01	1.401E 00	1.344E 01	2.027E 03	5.382E 02	3.277E-02	1.019E 03	2.954E 02	5.800E 02	2.631E 05		
6.954E-04	4.777E-02	5.262E-01	1.401E 00	1.333E 01	2.027E 03	5.385E 02	3.246E-02	1.047E 03	2.982E 02	5.906E 02	2.636E 05		
-1.279E-02	4.361E-02	5.059E-01	1.401E 00	1.366E 01	2.029E 03	5.394E 02	3.327E-02	1.024E 03	2.904E 02	5.909E 02	2.623E 05		
-2.627E-02	7.161E-02	4.649E-01	1.401E 00	1.479E 01	2.030E 03	5.441E 02	3.979E-02	9.714E 02	2.703E 02	5.435E 02	2.608E 03		
-3.946E-02	5.064E-02	4.020E-01	1.401E 00	1.727E 01	2.035E 03	5.515E 02	4.125E-02	6.459E 02	2.344E 02	5.905E 02	2.584E 03		
-6.595E-02	1.431E-02	3.479E-01	1.400E 00	1.984E 01	2.034E 03	5.401E 02	4.874E-02	8.249E 02	2.075E 02	5.949E 02	2.577E 03		
-5.763E-02	1.404E-02	2.932E-01	1.399E 00	2.834E 01	2.041E 03	5.714E 02	5.395E-02	7.445E 02	1.804E 02	6.109E 02	2.580E 03		
-6.735E-02	9.421E-03	2.661E-01	1.399E 00	2.494E 01	2.042E 03	5.612E 02	5.904E-02	7.319E 02	1.445E 02	6.219E 02	2.580E 03		
-7.374E-02	4.421E-03	2.546E-01	1.399E 00	2.735E 01	2.041E 03	5.875E 02	4.151E-02	7.240E 02	1.590E 02	6.245E 02	2.587E 03		
-7.431E-02	2.476E-03	2.492E-01	1.399E 00	2.797E 01	2.039E 03	5.849E 02	6.264E-02	7.274E 02	1.563E 02	6.312E 02	2.594E 05		

[illegible]

[illegible]

TEST NUMBER - I D

Jet Gas - Hydrogen
Outer Stream Gas - Air

[illegible]

RTPT	RTPT	MJ10M/SEC1	MJ10M/MJL01	YTJ01	PTJ1P3F1	CPJ10M/PT 31	GAMJ	MJ10M/PT 31	MJ10M/SEC1		
1.2095E-01	1.4005E-02	1.4229E-02	2.0160E 00	1.4005E 02	2.5400E 05	5.4190E 00	1.4040E 00	5.2099E-00	2.3090E 03		
MJ10M/01	TSJ01	TSJ01	MJ10M/01	TSJ01	PTJ1P3F1	CPJ10M/PT 31	GAMJ	MJ10M/PT 31	MJ10M/SEC1		
1.5327E 03	1.1331E 02	5.0771E 02	1.5350E 01	6.4999E 02	2.7774E 03	2.6000E-01	1.3977E 00	6.4900E-02	7.9441E 02		
RTPT	C	CPJ10M/PT 31	GAM	MJ	PTJ1P3F1	TSJ01	MJ10M/PT 31	UJ1P7/SEC1	MJ10M/01	TSJ01	PTJ1P3F1
6.930E-02	1.600E-03	2.400E-01	1.399E 00	2.0360 01	2.047E 03	9.944E 02	6.379E-02	6.056E 02	1.502E 02	6.4750 02	2.703E 03
4.763E-02	1.000E-05	2.409E-01	1.398E 00	2.047E 01	2.040E 03	5.934E 02	6.529E-02	7.995E 02	1.547E 02	6.407E 02	2.702E 03
5.470E-02	2.015E-03	2.498E-01	1.398E 00	2.792E 01	2.041E 03	5.075E 02	6.338E-02	6.002E 02	1.594E 02	6.187E 02	2.763E 03
2.639E-02	4.542E-02	3.053E-01	1.400E 00	1.002E 01	2.0520 03	5.550E 02	4.338E-02	6.459E 02	2.257E 02	5.920E 02	2.572E 03
2.126E-02	1.458E-01	7.049E-01	1.402E 00	9.024E 00	2.047E 03	5.174E 02	2.422E-02	1.114E 03	3.970E 02	5.726E 02	2.553E 03
1.339E-02	5.130E-01	1.074E 00	1.404E 00	3.688E 00	2.044E 03	5.224E 02	9.318E-05	1.068E 03	1.031E 05	5.394E 02	2.595E 03
5.550E-01	6.212E-01	3.172E 00	1.404E 00	2.175E 00	2.048E 03	5.185E 02	5.501E-03	2.146E 03	1.725E 03	5.311E 02	2.584E 03
4.064E-04	9.507E-01	5.265E 00	1.404E 00	2.113E 00	2.049E 03	5.191E 02	5.399E-03	2.175E 03	1.777E 03	5.359E 02	2.561E 05
-2.646E-05	9.184E-01	5.165E 00	1.404E 00	2.180E 00	2.091E 03	5.195E 02	5.572E-03	2.342E 03	1.724E 03	5.541E 02	2.566E 03
-1.333E-02	2.911E-01	1.168E 00	1.403E 00	5.922E 00	2.051E 03	5.289E 02	1.487E-02	1.460E 03	6.448E 02	5.693E 02	2.587E 03
-2.675E-02	1.602E-02	2.918E-01	1.495E 00	2.386E 00	2.043E 03	5.766E 02	5.497E-02	7.453E 02	1.794E 02	6.199E 02	2.645E 03
-4.617E-02	3.680E-03	2.537E-01	1.398E 00	2.750E 01	2.065E 03	5.961E 02	6.146E-02	6.193E 02	1.634E 02	6.480E 02	2.702E 03
-4.687E-02	2.715E-03	2.494E-01	1.398E 00	2.796E 01	2.049E 03	5.966E 02	6.275E-02	6.121E 02	1.605E 02	6.493E 02	2.704E 05
-9.141E-02	3.422E-03	2.510E-01	1.398E 00	2.770E 01	2.049E 03	5.954E 02	6.231E-02	6.176E 02	1.621E 02	6.484E 02	2.701E 03
RTPT	RTPT	MJ10M/SEC1	MJ10M/MJL01	YTJ01	PTJ1P3F1	CPJ10M/PT 31	GAMJ	MJ10M/PT 31	MJ10M/SEC1		
1.6507E-01	1.6599E-00	1.4024E-02	2.0160E 00	6.4034E 02	2.5341E 03	3.4203E 00	1.4040E 00	6.1505E-03	2.6090E 03		
MJ10M/01	TSJ01	TSJ01	MJ10M/01	TSJ01	PTJ1P3F1	CPJ10M/PT 31	GAMJ	MJ10M/PT 31	MJ10M/SEC1		
1.6444E 03	5.1462E 02	3.0754E 02	1.5532E 02	6.4925E 02	2.7591E 03	2.4089E-01	1.3978E 00	6.4900E-02	7.9442E 02		
RTPT	C	CPJ10M/PT 31	GAM	MJ	PTJ1P3F1	TSJ01	MJ10M/PT 31	UJ1P7/SEC1	MJ10M/01	TSJ01	PTJ1P3F1
8.644E-02	7.162E-04	2.432E-01	1.398E 00	2.870E 01	2.040E 03	5.959E 02	6.442E-02	7.954E 02	1.504E 02	6.484E 02	2.701E 00
7.119E-02	6.685E-03	2.402E-01	1.398E 00	2.659E 01	2.062E 05	5.961E 02	5.953E-02	6.274E 02	1.684E 02	6.482E 02	2.767E 03
6.290E-02	5.005E-01	2.555E-01	1.398E 00	2.688E 01	2.042E 03	5.959E 02	6.020E-02	6.222E 02	1.668E 02	6.679E 02	2.766E 03
5.008E-02	4.007E-03	2.537E-01	1.398E 00	2.750E 01	2.041E 03	5.946E 02	6.170E-02	6.132E 02	1.628E 02	6.678E 02	2.768E 03
4.033E-02	6.372E-03	2.526E-01	1.398E 00	2.761E 01	2.059E 03	5.931E 02	6.206E-02	6.082E 02	1.616E 02	6.647E 02	2.760E 05
3.147E-02	1.354E-02	2.030E-01	1.395E 00	2.453E 01	2.052E 03	5.765E 02	5.652E-02	7.503E 02	1.747E 02	6.204E 02	2.654E 03
2.842E-02	2.893E-02	3.320E-01	1.400E 00	2.059E 01	2.049E 03	5.659E 02	4.894E-02	6.029E 02	1.993E 02	6.045E 02	2.592E 03
2.537E-02	5.181E-02	4.121E-01	1.401E 00	1.685E 01	2.040E 03	5.561E 02	4.013E-02	6.372E 02	2.611E 02	5.917E 02	2.542E 03
2.232E-02	9.958E-02	5.260E-01	1.401E 00	1.318E 01	2.043E 03	5.474E 02	3.184E-02	6.527E 02	3.023E 02	5.820E 02	2.929E 03
1.924E-02	1.374E-01	6.794E-01	1.402E 00	1.019E 01	2.040E 03	5.408E 02	2.488E-02	1.099E 03	3.463E 02	5.743E 02	2.547E 05
1.510E-02	1.593E-01	8.754E-01	1.402E 00	7.904E 00	2.038E 03	5.357E 02	1.947E-02	1.272E 05	4.937E 02	5.726E 02	2.570E 03
7.814E-03	4.344E-01	1.242E 00	1.403E 00	4.255E 00	2.034E 03	5.267E 02	1.064E-02	1.780E 03	6.034E 02	5.656E 02	2.607E 03
4.771E-03	5.086E-01	1.060E 00	1.403E 00	5.714E 00	2.034E 03	5.250E 02	9.314E-01	1.905E 03	1.031E 03	5.639E 02	2.609E 05
1.603E-03	5.445E-01	2.033E 00	1.403E 00	3.349E 00	2.034E 03	5.241E 02	8.514E-03	1.991E 03	1.128E 03	5.629E 02	2.608E 05
-1.501E-03	5.531E-01	2.002E 00	1.403E 00	3.451E 00	2.035E 03	5.247E 02	8.642E-03	1.967E 03	1.109E 03	5.632E 02	2.604E 05
-0.470E-03	4.053E-01	1.532E 00	1.403E 00	4.513E 00	2.035E 03	5.273E 02	1.127E-02	1.723E 03	6.925E 02	5.659E 02	2.603E 03
-1.511E-02	2.645E-01	1.083E 00	1.403E 00	6.385E 00	2.036E 03	5.311E 02	1.384E-02	1.436E 03	6.068E 02	5.691E 02	2.590E 03
-1.516E-02	1.592E-01	7.477E-01	1.402E 00	9.261E 00	2.039E 03	5.170E 02	2.276E-02	1.167E 03	4.225E 02	5.734E 02	2.593E 03
-2.112E-02	8.974E-02	5.265E-01	1.401E 00	1.317E 01	2.043E 03	5.403E 02	3.187E-02	4.654E 02	3.024E 02	5.917E 02	2.543E 03
-2.814E-02	4.178E-02	7.171E-01	1.400E 00	1.039E 01	2.047E 03	5.397E 02	4.401E-02	5.366E 02	2.208E 02	5.964E 02	2.566E 03
-3.611E-02	7.210E-03	2.635E-01	1.398E 00	2.642E 01	2.055E 03	5.385E 02	5.989E-02	7.956E 02	1.680E 02	6.160E 02	2.713E 03
-4.300E-02	6.101E-03	2.575E-01	1.398E 00	2.792E 01	2.055E 03	5.338E 02	6.273E-02	6.074E 02	1.601E 02	6.454E 02	2.766E 03
-5.375E-02	7.014E-03	2.831E-01	1.398E 00	2.644E 01	2.042E 03	5.945E 02	9.947E-02	6.701E 02	1.689E 02	6.467E 02	2.772E 03
-6.762E-02	6.121E-03	2.603E-01	1.398E 00	2.678E 01	2.062E 03	5.946E 02	6.011E-02	6.274E 02	1.672E 02	6.471E 02	2.779E 05
-7.941E-02	5.512E-03	2.513E-01	1.398E 00	2.654E 01	2.060E 03	5.940E 02	6.055E-02	6.258E 02	1.659E 02	6.467E 02	2.776E 05
-1.003E-01	4.222E-03	2.576E-01	1.398E 00	2.708E 01	2.056E 03	5.933E 02	6.075E-02	6.216E 02	1.650E 02	6.456E 02	2.767E 05
-1.330E-01	3.710E-03	2.513E-01	1.398E 00	2.774E 01	2.056E 03	5.856E 02	6.305E-02	7.594E 02	1.578E 02	6.314E 02	2.678E 03
RTPT	RTPT	MJ10M/SEC1	MJ10M/MJL01	YTJ01	PTJ1P3F1	CPJ10M/PT 31	GAMJ	MJ10M/PT 31	MJ10M/SEC1		
2.3437E-01	6.5437E-02	1.4062E-02	2.0160E 00	1.4054E 00	2.5303E 03	3.4204E 00	1.4040E 00	5.1505E-03	2.6107E 00		
MJ10M/01	TSJ01	TSJ01	MJ10M/01	TSJ01	PTJ1P3F1	CPJ10M/PT 31	GAMJ	MJ10M/PT 31	MJ10M/SEC1		
1.6481E 05	5.1433E 02	5.9740E 02	1.5543E 02	6.4969E 02	2.7644E 03	2.4090E-01	1.3977E 00	6.4822E-02	7.9443E 02		
RTPT	C	CPJ10M/PT 31	GAM	MJ	PTJ1P3F1	TSJ01	MJ10M/PT 31	UJ1P7/SEC1	MJ10M/01	TSJ01	PTJ1P3F1
6.909E-02	1.160E-04	2.412E-01	1.398E 00	2.8920 01	2.055E 03	5.952E 02	6.446E-02	6.007E 02	1.553E 02	6.402E 02	2.774E 03
8.210E-02	3.285E-03	2.514E-01	1.398E 00	2.775E 01	2.047E 03	5.952E 02	6.208E-02	6.167E 02	1.617E 02	6.482E 02	2.775E 05
7.515E-02	1.000E-05	2.409E-01	1.398E 00	2.857E 01	2.050E 03	5.957E 02	6.483E-02	7.946E 02	1.551E 02	6.481E 02	2.775E 03
6.380E-02	7.202E-04	2.432E-01	1.398E 00	2.869E 01	2.050E 03	5.952E 02	6.425E-02	6.021E 02	1.565E 02	6.480E 02	2.776E 05
5.429E-02	6.487E-04	2.429E-01	1.398E 00	2.872E 01	2.050E 03	5.947E 02	6.435E-02	5.010E 02	1.562E 02	6.475E 02	2.775E 03
4.649E-02	3.303E-03	2.514E-01	1.398E 00	2.774E 01	2.050E 03	5.933E 02	6.230E-02	6.118E 02	1.611E 02	6.456E 02	2.770E 03
4.027E-02	6.745E-03	2.623E-01	1.398E 00	2.657E 01	2.056E 03	5.972E 02	6.022E-02	6.129E 02	1.660E 02	6.575E 02	2.743E 03
3.641E-02	1.188E-03	2.785E-01	1.399E 00	2.509E 01	2.054E 03	5.975E 02	5.745E-02	7.934E 02	1.723E 02	6.236E 02	2.673E 05
2.946E-02	3.563E-03	2.542E-01	1.400E 00	1.962E 01	2.048E 03	5.811E 02	4.630E-02	6.286E 02	2.104E 02	6.001E 02	2.570E 03
2.692E-02	9.480E-02	4.155E-01	1.401E 00	1.671E 01	2.046E 03	5.945E 02	1.980E-02	5.700E 02	2.424E 02	5.910E 02	2.534E 03
2.344E-02	9.111E-02	4.491E-01	1.401E 00	1.590E 01	2.043E 03	5.944E 02	3.345E-02	9.424E 02	2.481E 02	5.850E 02	2.545E 05
2.095E-02	1.094E-01	5.814E-01	1.402E 00	1.177E 01	2.041E 03	5.444E 02	2.554E-02	1.030E 03	3.736E 02	5.805E 02	2.591E 03
1.904E-02	1.673E-01	7.737E-01	1.402E 00	8.951E 00	2.036E 03	5.386E 02	2.190E-02	1.217E 03	4.394E 02	5.764E 02	2.581E 05
6.523E-03	2.275E-01	9.657E-01	1.402E 00	7.167E 00	2.072E 03	5.341E 02	1.765E-02	1.391E 03	5.440E 02	5.741E 02	2.614E 03
3.489E-03	2.559E-01	1.056E 00	1.402E 00	6.552E 00	2.031E 03	5.320E 02	1.616E-02	1.477E 03	5.966E 02	5.740E 02	2.633E 05
-2.519E-03	2.631E-01	1.079E 00	1.402E 00	6.412E 00	2.031E 03	5.327E 02	1.583E-02	1.492E 03	5.891E 02	5.734E 02	2.632E 05
-8.603E-03	2.310E-01	9.749E-01	1.402E 00	7.053E 00	2.033E 03	5.341E 02	1.745E-02	1.394E 03	5.919E 02	5.719E 02	2.611E 05
-1.148E-02	1.980E-01	8.743E-01	1.402E 00	7.918E 00	2.034E 03	5.358E 02	1.946E-02	1.305E 03	4.948E 02	5.747E 02	2.566E 05
-1.904E-02	1.244E-01	6.4									

[illegible]

01P21		CPIB2P/F 0	GM	M	PSIPSP1	T1101	OMD10M/P1 5	UIP275BC	M102P1 0	T1101	P115P1 0
9.055E-02	1.277E-03	2.464E-01	1.398E 00	2.382E 00	2.041E 03	5.522E 02	6.312E-02	0.071E 02	1.579E 02	6.445E 02	2.785E 00
2.672E-02	1.697E-04	2.414E-01	1.398E 00	2.890E 00	2.049E 03	5.940E 02	6.453E-02	0.054E 02	1.953E 02	5.478E 02	2.726E 00
5.570E-02	1.758E-04	2.437E-01	1.398E 00	2.803E 00	2.092E 03	5.937E 02	6.460E-02	0.064E 02	1.564E 02	6.470E 02	2.776E 00
5.007E-02	6.212E-01	2.553E-01	1.395E 00	2.732E 00	2.053E 03	5.924E 02	5.127E-03	0.181E 02	1.834E 02	5.447E 02	2.783E 00
6.950E-02	7.124E-03	2.835E-01	1.396E 00	2.854E 01	2.053E 03	5.858E 02	8.001E-02	0.074E 02	1.641E 02	6.350E 02	2.720E 00
4.100E-02	1.607E-02	2.920E-01	1.399E 00	2.385E 00	2.051E 03	5.758E 02	5.498E-02	0.148E 02	1.798E 02	6.210E 02	2.720E 00
3.378E-02	2.945E-03	3.348E-01	1.400E 00	2.879E 00	2.049E 03	5.642E 02	4.482E-02	0.102E 02	1.802E 02	5.932E 02	2.615E 00
3.645E-02	6.409E-02	4.450E-01	1.401E 00	1.560E 00	2.045E 03	5.550E 02	3.721E-02	0.400E 02	2.815E 02	5.947E 02	2.403E 00
1.734E-02	7.948E-02	4.941E-01	1.401E 00	1.404E 00	2.044E 03	5.520E 02	3.345E-02	0.859E 02	2.884E 02	5.912E 02	2.598E 00
1.051E-02	9.557E-02	5.454E-01	1.401E 00	1.272E 00	2.042E 03	5.495E 02	3.060E-02	1.034E 02	3.167E 02	5.886E 02	2.597E 00
4.064E-02	1.027E-01	5.817E-01	1.401E 00	1.221E 00	2.042E 03	5.483E 02	2.942E-02	1.058E 02	3.293E 02	5.874E 02	2.600E 00
-3.552E-03	9.590E-02	5.507E-01	1.401E 00	1.240E 00	2.042E 03	5.499E 02	2.983E-02	1.048E 02	3.240E 02	5.878E 02	2.597E 00
-0.864E-03	9.631E-02	5.422E-01	1.401E 00	1.284E 00	2.042E 03	5.600E 02	3.043E-02	1.039E 02	3.184E 02	5.882E 02	2.597E 00
-1.998E-02	8.810E-02	5.214E-01	1.401E 00	1.330E 00	2.042E 03	5.612E 02	3.112E-02	0.994E 02	3.112E 02	5.904E 02	2.590E 00
-2.053E-02	9.435E-02	5.980E-01	1.400E 00	1.745E 00	2.042E 03	5.410E 02	4.124E-02	0.911E 02	2.936E 02	5.910E 02	2.596E 00
-3.613E-02	3.358E-02	3.478E-01	1.400E 00	1.999E 00	2.050E 03	5.673E 02	4.477E-02	0.824E 02	2.100E 02	5.100E 02	2.643E 00
-4.444E-02	1.678E-02	2.943E-01	1.399E 00	2.368E 00	2.052E 03	5.791E 02	5.428E-02	0.289E 02	1.825E 02	6.257E 02	2.852E 00
-5.312E-02	1.352E-02	2.804E-01	1.399E 00	2.454E 00	2.053E 03	5.877E 02	5.549E-02	0.512E 02	1.790E 02	6.358E 02	2.748E 00
-8.151E-02	1.532E-02	2.899E-01	1.398E 00	2.404E 00	2.053E 03	5.917E 02	5.599E-02	0.780E 02	1.852E 02	6.447E 02	2.782E 00
-2.107E-02	8.445E-03	2.421E-01	1.398E 00	2.481E 00	2.050E 03	5.430E 02	5.932E-02	0.615E 02	1.897E 02	6.272E 02	2.782E 00
-2.107E-02	6.051E-03	2.411E-01	1.398E 00	2.481E 00	2.050E 03	5.430E 02	5.932E-02	0.615E 02	1.897E 02	6.272E 02	2.782E 00
-4.077E-02	9.059E-02	7.050E-01	1.398E 00	1.944E 00	2.044E 03	5.919E 02	5.693E-02	0.869E 02	1.753E 02	5.452E 02	2.749E 00
-1.003E-02	7.989E-03	2.451E-01	1.398E 00	2.430E 00	2.044E 03	5.480E 02	5.914E-02	0.218E 02	1.602E 02	6.344E 02	2.735E 00
-1.263E-02	1.352E-02	2.951E-01	1.398E 00	2.339E 00	2.044E 03	5.645E 02	1.342E-03	2.573E 02	1.834E 02	5.288E 02	2.500E 00

[illegible]

01F21	C	CP1070 P	GAH	PA	P510P5F1	73101	MD10H/P2.31	U1ET/SEC1	NI070/P1	27101	P210P5
9.075E-01	2.300E-01	2.491E-01	1.198E 00	2.7490 01	2.202E 03	5.091E 02	6.254E-02	1.628E 02	9.945E 02	6.327E 02	2.642E 03
9.346E-02	2.912E-03	2.501E-01	1.199E 00	2.788E 01	2.203E 03	5.090E 02	6.233E-02	6.044E 02	1.591E 02	6.404E 02	2.735E 05
7.703E-02	2.337E-03	2.404E-01	1.195E 00	2.795E 01	2.204E 03	5.020E 02	6.252E-02	6.182E 02	1.800E 02	6.456E 02	2.773E 05
6.247E-02	2.402E-03	2.457E-01	1.193E 00	2.805E 01	2.205E 03	5.910E 02	6.300E-02	5.134E 02	1.591E 02	6.441E 02	2.775E 05
9.303E-02	2.097E-03	2.544E-01	1.193E 00	2.719E 01	2.202E 03	5.663E 02	6.158E-02	6.049E 02	1.421E 02	6.370E 02	2.745E 05
4.518E-02	1.178E-02	2.753E-01	1.199E 00	2.503E 01	2.2051P 03	5.780E 02	5.733E-02	6.148E 02	1.730P 02	6.285P 02	2.706E 05
5.831E-02	2.419E-02	2.178E-01	1.199E 00	2.159E 01	2.2049E 03	5.692E 02	5.100E-02	6.348E 02	1.730E 02	6.130E 02	2.856E 05
2.915E-02	4.743E-02	3.919E-01	1.400E 00	1.773E 01	2.2047E 03	5.403E 02	4.192E-02	6.046E 02	2.130E 02	6.013E 02	2.820E 05
2.252E-02	5.946E-02	4.430E-01	1.401E 00	1.567E 01	2.2045E 03	5.632E 02	3.729E-02	6.938E 02	2.811E 02	5.944E 02	2.609E 05
3.640E-02	7.403E-02	4.788E-01	1.401E 00	1.450E 01	2.2044E 03	5.441E 02	3.462E-02	9.755E 02	2.807E 02	5.938E 02	2.803E 05
9.250E-02	2.501E-02	5.031E-01	1.401E 00	1.179E 01	2.2043E 03	5.921E 02	3.304E-02	1.000E 03	2.673E 02	5.917E 02	2.504E 05
9.767E-03	9.001E-02	5.031E-01	1.401E 00	1.179E 01	2.2043E 03	5.921E 02	3.304E-02	1.019E 03	5.917E 02	2.504E 05	
8.220E-04	9.131E-02	5.319E-01	1.401E 00	1.104E 01	2.2043E 03	5.703E 02	3.334E-02	9.997E 02	5.901E 02	2.406E 05	
-2.521E-03	9.106E-02	5.310E-01	1.401E 00	1.104E 01	2.2043E 03	5.505E 02	3.138E-02	9.027E 02	5.903E 02	2.402E 05	
-5.494E-03	9.018E-02	5.250E-01	1.401E 00	1.321E 01	2.2043E 03	5.513E 02	3.170E-02	1.001E 03	5.059E 02	5.903E 02	2.594E 05
-8.915E-03	8.525E-02	5.101E-01	1.401E 00	1.340E 01	2.2044E 03	5.519E 02	3.260E-02	1.001E 03	5.977E 02	5.911E 02	2.598E 05
-1.204E-02	9.001E-02	4.984E-01	1.401E 00	1.352E 01	2.2044E 03	5.520E 02	3.335E-02	9.918E 02	2.911E 02	5.914E 02	2.601P 05
-1.534E-02	7.671E-02	4.632E-01	1.401E 00	1.430E 01	2.2045E 03	5.526E 02	3.420E-02	9.918E 02	2.838E 02	5.922E 02	2.605E 05
-1.968E-02	7.044E-02	4.453E-01	1.401E 00	1.492E 01	2.2046E 03	5.543E 02	3.562E-02	9.817E 02	2.731E 02	5.942E 02	2.605E 05
-2.710E-02	5.267E-02	4.086E-01	1.400E 00	1.700E 01	2.2048E 03	5.583E 02	4.038E-02	9.093E 02	2.415E 02	5.987E 02	2.615E 05
-9.949E-03	3.187E-02	3.423E-01	1.400E 00	2.031E 01	2.2050E 03	5.644E 02	4.750E-02	6.928E 02	2.064E 02	5.991E 02	2.539E 05
-4.332E-02	1.666E-02	2.918E-01	1.199E 00	2.349E 01	2.2051E 03	5.750E 02	9.495E-02	6.202E 02	1.810E 02	6.213P 02	2.881E 05
-9.167E-02	1.032E-02	2.415E-01	1.199E 00	2.355E 01	2.2052E 03	5.838E 02	9.544E-02	6.490E 02	1.830E 02	6.332P 02	2.728

[illegible]

91101		C010709 P 01		Mu		P51(P5F)		S3101		S010107 P 31		U1P7/SEC3		M10P7/01		E7101		P21(P2F)	
9.1006-02	9.2708-04	2.437E-01	1.390E 00	2.662E 01	2.203E 03	5.808E 02	8.394E-02	7.095E 02	1.599E 02	6.395E 02	2.723E 03								
7.657E-02	2.152E-01	2.475E-01	1.390E 00	2.615E 01	2.204E 03	5.917E 02	8.290E-02	6.153E 02	1.598E 02	6.450E 02	2.765E 03								
5.973E-02	2.693E-03	2.494E-01	1.390E 00	2.794E 01	2.204E 03	5.909E 02	8.271E-02	5.135E 02	1.594E 02	6.458E 02	2.647E 03								
5.919E-02	5.901E-03	2.631E-01	1.390E 00	2.550E 01	2.204E 03	5.908E 02	5.971E-02	6.250E 02	1.472E 02	6.402E 02	2.753E 03								
5.104E-02	8.341E-03	2.474E-01	1.390E 00	2.650E 01	2.209E 03	5.937E 02	5.922E-02	5.002E 02	1.479E 02	6.325E 02	2.716E 03								
6.309E-02	1.730E-02	2.959E-01	1.390E 00	2.353E 01	2.204E 03	5.753E 02	5.421E-02	6.237E 02	1.822E 02	6.211E 02	2.579E 03								
3.646E-02	3.096E-02	3.394E-01	1.400E 00	2.049E 01	2.206E 03	5.995E 02	4.777E-02	5.949E 02	2.055E 02	6.115E 02	2.893E 03								
2.856E-02	4.551E-02	5.866E-01	1.400E 00	1.257E 01	2.204E 03	5.617E 02	6.236E-02	5.982E 02	2.300E 02	6.030E 02	2.628E 03								
3.797E-02	4.088E-02	5.488E-01	1.401E 00	1.597E 01	2.204E 03	5.687E 02	1.780E-02	5.936E 02	2.572E 02	5.986E 02	2.613E 03								
1.119E-02	7.105E-02	4.673E-01	1.401E 00	1.486E 01	2.204E 03	5.545E 02	3.536E-02	5.712E 02	2.792E 02	5.903E 02	2.611E 03								
1.119E-02	7.105E-02	4.673E-01	1.401E 00	1.486E 01	2.204E 03	5.545E 02	3.536E-02	5.712E 02	2.792E 02	5.903E 02	2.611E 03								
1.119E-02	7.105E-02	4.673E-01	1.401E 00	1.486E 01	2.204E 03	5.545E 02	3.536E-02	5.712E 02	2.792E 02	5.903E 02	2.611E 03								
2.053E-03	7.691E-02	4.831E-01	1.401E 00	1.417E 01	2.204E 03	5.541E 02	3.531E-02	5.709E 02	2.839E 02	5.965E 02	2.612E 03								
5.103E-03	7.325E-02	4.742E-01	1.401E 00	1.464E 01	2.204E 03	5.544E 02	3.492E-02	5.749E 02	2.709E 02	5.966E 02	2.608E 03								
5.343E-02	7.216E-02	4.714E-01	1.401E 00	1.472E 01	2.204E 03	5.551E 02	3.511E-02	5.679E 02	2.770E 02	5.949E 02	2.605E 03								
1.143E-02	6.021E-02	4.562E-01	1.401E 00	1.515E 01	2.204E 03	5.583E 02	3.605E-02	5.581E 02	2.599E 02	5.503E 02	2.607E 03								
1.455E-02	6.627E-02	4.534E-01	1.401E 00	1.931E 01	2.204E 03	5.563E 02	3.644E-02	5.572E 02	2.672E 02	5.964E 02	2.612E 03								
2.27E-02	5.335E-02	4.104E-01	1.400E 00	1.691E 01	2.204E 03	5.492E 02	4.006E-02	5.150E 02	2.436E 02	5.999E 02	2.617E 03								
2.978E-02	4.232E-02	3.750E-01	1.400E 00	1.950E 01	2.204E 03	5.633E 02	4.354E-02	5.860E 02	2.249E 02	6.050E 02	2.630E 03								
3.904E-02	2.735E-02	3.291E-01	1.400E 00	2.113E 01	2.204E 03	5.701E 02	4.917E-02	6.866E 02	2.001E 02	6.138E 02	2.654E 03								
4.794E-02	1.567E-02	2.906E-01	1.359E 00	2.355E 01	2.205E 03	5.795E 02	5.808E-02	6.283E 02	1.806E 02	6.288E 02	2.697E 03								
8.704E-02	1.011E-02	2.503E-01	1.359E 00	2.595E 01	2.205E 03	5.871E 02	5.721E-02	6.224E 02	1.710E 02	6.371E 02	2.729E 03								
8.704E-02	4.703E-02	2.559E-01	1.395E 00	2.720E 01	2.204E 03	5.840E 02	6.040E-02	6.141E 02	1.704E 02	6.401E 02	2.747E 03								
7.943E-02	7.610E-02	2.596E-01	1.398E 00	2.627E 01	2.202E 03	5.930E 02	5.804E-02	6.219E 02	1.693E 02	6.450E 02	2.759E 03								
5.368E-02	4.519E-03	2.553E-01	1.390E 00	2.712E 01	2.203E 03	5.519E 02	5.089E-02	6.219E 02	1.693E 02	6.450E 02	2.759E 03								
1.015E-01	5.423E-03	2.581E-01	1.394E 00	2.701E 01	2.203E 03	5.808E 02	6.047E-02	6.780E 02	1.432E 02	6.370E 02	2.684E 03								
1.287E-01	9.237E-01	2.701E-01	1.390E 00	2.979E 01	2.203E 03	5.534E 02	8.825E-02	6.870E 02	1.656E 02	6.163E 02	2.694E 03								

[illegible]

TEST NUMBER - I E

Jet Gas - Hydrogen
Outer Stream Gas - Air

RIFT	C	CP1BTU/8 31	GAM	NO	PSIPSP1	TSIR1	PHO18M/FT 31	UFT/SEC1	H18TU/01	TEIR1	PT1PSP1
1.0924E-02	1.000E-05	2.400E-01	1.398E 00	2.897E 01	2.125E 03	5.970E 02	6.612E-02	7.900E 02	1.940E 02	6.430E 02	3.707E 03
6.404E-02	4.114E-03	2.540E-01	1.398E 00	2.766E 01	2.125E 03	5.970E 02	6.326E-02	7.693E 02	1.622E 02	6.439E 02	2.760E 03
4.955E-02	2.399E-03	2.485E-01	1.398E 00	2.407E 01	2.125E 03	5.963E 02	3.474E-02	7.607E 02	1.594E 02	6.427E 02	2.760E 03
3.455E-02	8.104E-03	2.668E-01	1.398E 00	2.614E 01	2.125E 03	5.955E 02	6.036E-02	7.675E 02	1.699E 02	6.419E 02	2.765E 03
2.136E-02	1.926E-02	3.024E-01	1.399E 00	2.304E 01	2.134E 03	5.933E 02	9.302E-02	7.276E 02	1.913E 02	6.363E 02	2.761E 03
2.026E-02	2.372E-03	2.452E-01	1.398E 00	2.808E 01	2.134E 03	5.857E 02	6.317E-02	7.327E 02	1.551E 02	6.289E 02	2.749E 03
1.725E-02	3.22E-01	1.268E 00	1.403E 00	5.452E 00	2.142E 03	5.438E 02	1.390E-02	1.052E 02	7.001E 02	5.612E 02	2.390E 03
1.435E-02	9.999E-01	3.415E 00	1.405E 00	2.018E 00	2.143E 03	5.287E 02	5.293E-03	1.594E 03	1.826E 03	5.826E 02	2.361E 03
5.729E-03	1.002E 00	3.426E 00	1.405E 00	2.012E 00	2.143E 03	5.107E 02	2.263E-03	1.604E 03	1.834E 03	5.432E 02	2.361E 03
5.114E-04	9.705E-01	3.410E 00	1.405E 00	2.027E 00	2.145E 03	5.309E 02	5.186E-03	1.609E 03	1.812E 03	5.441E 02	2.369E 03
-9.727E-03	1.004E 00	3.432E 00	1.404E 00	2.009E 00	2.144E 03	5.361E 02	9.721E-03	1.611E 03	1.851E 03	5.452E 02	2.362E 03
-2.147E-02	9.551E-01	3.054E 00	1.405E 00	2.257E 00	2.138E 03	5.308E 02	3.803E-03	1.537E 03	1.641E 03	5.463E 02	2.361E 03
-2.944E-02	2.470E-02	3.145E-01	1.401E 00	2.074E 01	2.135E 03	5.506E 02	5.204E-02	6.846E 02	1.970E 02	3.705E 02	2.310E 03
-2.737E-02	6.830E-03	2.625E-01	1.399E 00	2.655E 01	2.134E 03	5.856E 02	6.702E-02	7.535E 02	1.670E 02	6.280E 02	2.740E 03
-1.044E-02	1.344E-03	2.450E-01	1.398E 00	2.866E 01	2.133E 03	5.942E 02	6.445E-02	7.444E 02	1.550E 02	6.366E 02	2.760E 03
-4.861E-02	3.150E-03	2.515E-01	1.398E 00	2.773E 01	2.125E 03	5.463E 02	6.355E-02	7.690E 02	1.607E 02	6.434E 02	2.774E 03
-4.707E-02	5.813E-03	2.667E-01	1.394E 00	2.617E 01	2.114E 03	5.762E 02	6.007E-02	6.001E 02	1.703E 02	6.441E 02	2.774E 03
-8.074E-02	1.803E-05	2.408E-01	1.398E 00	2.897E 01	2.101E 03	5.946E 02	6.255E-02	7.490E 02	1.540E 02	6.430E 02	2.775E 03

RIFT	C	CP1BTU/8 31	GAM	NO	PSIPSP1	TSIR1	PHO18M/FT 31	UFT/SEC1	H18TU/01	TEIR1	PT1PSP1
1.0924E-02	1.000E-05	2.400E-01	1.398E 00	2.897E 01	2.125E 03	5.970E 02	6.612E-02	7.900E 02	1.940E 02	6.430E 02	3.707E 03
6.404E-02	4.114E-03	2.540E-01	1.398E 00	2.766E 01	2.125E 03	5.970E 02	6.326E-02	7.693E 02	1.622E 02	6.439E 02	2.760E 03
4.955E-02	2.399E-03	2.485E-01	1.398E 00	2.407E 01	2.125E 03	5.963E 02	3.474E-02	7.607E 02	1.594E 02	6.427E 02	2.760E 03
3.455E-02	8.104E-03	2.668E-01	1.398E 00	2.614E 01	2.125E 03	5.955E 02	6.036E-02	7.675E 02	1.699E 02	6.419E 02	2.765E 03
2.136E-02	1.926E-02	3.024E-01	1.399E 00	2.304E 01	2.134E 03	5.933E 02	9.302E-02	7.276E 02	1.913E 02	6.363E 02	2.761E 03
2.026E-02	2.372E-03	2.452E-01	1.398E 00	2.808E 01	2.134E 03	5.857E 02	6.317E-02	7.327E 02	1.551E 02	6.289E 02	2.749E 03
1.725E-02	3.22E-01	1.268E 00	1.403E 00	5.452E 00	2.142E 03	5.438E 02	1.390E-02	1.052E 02	7.001E 02	5.612E 02	2.390E 03
1.435E-02	9.999E-01	3.415E 00	1.405E 00	2.018E 00	2.143E 03	5.287E 02	5.293E-03	1.594E 03	1.826E 03	5.826E 02	2.361E 03
5.729E-03	1.002E 00	3.426E 00	1.405E 00	2.012E 00	2.143E 03	5.107E 02	2.263E-03	1.604E 03	1.834E 03	5.432E 02	2.361E 03
5.114E-04	9.705E-01	3.410E 00	1.405E 00	2.027E 00	2.145E 03	5.309E 02	5.186E-03	1.609E 03	1.812E 03	5.441E 02	2.369E 03
-9.727E-03	1.004E 00	3.432E 00	1.404E 00	2.009E 00	2.144E 03	5.361E 02	9.721E-03	1.611E 03	1.851E 03	5.452E 02	2.362E 03
-2.147E-02	9.551E-01	3.054E 00	1.405E 00	2.257E 00	2.138E 03	5.308E 02	3.803E-03	1.537E 03	1.641E 03	5.463E 02	2.361E 03
-2.944E-02	2.470E-02	3.145E-01	1.401E 00	2.074E 01	2.135E 03	5.506E 02	5.204E-02	6.846E 02	1.970E 02	3.705E 02	2.310E 03
-2.737E-02	6.830E-03	2.625E-01	1.399E 00	2.655E 01	2.134E 03	5.856E 02	6.702E-02	7.535E 02	1.670E 02	6.280E 02	2.740E 03
-1.044E-02	1.344E-03	2.450E-01	1.398E 00	2.866E 01	2.133E 03	5.942E 02	6.445E-02	7.444E 02	1.550E 02	6.366E 02	2.760E 03
-4.861E-02	3.150E-03	2.515E-01	1.398E 00	2.773E 01	2.125E 03	5.463E 02	6.355E-02	7.690E 02	1.607E 02	6.434E 02	2.774E 03
-4.707E-02	5.813E-03	2.667E-01	1.394E 00	2.617E 01	2.114E 03	5.762E 02	6.007E-02	6.001E 02	1.703E 02	6.441E 02	2.774E 03
-8.074E-02	1.803E-05	2.408E-01	1.398E 00	2.897E 01	2.101E 03	5.946E 02	6.255E-02	7.490E 02	1.540E 02	6.430E 02	2.775E 03

RIFT	C	CP1BTU/8 31	GAM	NO	PSIPSP1	TSIR1	PHO18M/FT 31	UFT/SEC1	H18TU/01	TEIR1	PT1PSP1
1.0924E-02	1.000E-05	2.400E-01	1.398E 00	2.897E 01	2.125E 03	5.970E 02	6.612E-02	7.900E 02	1.940E 02	6.430E 02	3.707E 03
6.404E-02	4.114E-03	2.540E-01	1.398E 00	2.766E 01	2.125E 03	5.970E 02	6.326E-02	7.693E 02	1.622E 02	6.439E 02	2.760E 03
4.955E-02	2.399E-03	2.485E-01	1.398E 00	2.407E 01	2.125E 03	5.963E 02	3.474E-02	7.607E 02	1.594E 02	6.427E 02	2.760E 03
3.455E-02	8.104E-03	2.668E-01	1.398E 00	2.614E 01	2.125E 03	5.955E 02	6.036E-02	7.675E 02	1.699E 02	6.419E 02	2.765E 03
2.136E-02	1.926E-02	3.024E-01	1.399E 00	2.304E 01	2.134E 03	5.933E 02	9.302E-02	7.276E 02	1.913E 02	6.363E 02	2.761E 03
2.026E-02	2.372E-03	2.452E-01	1.398E 00	2.808E 01	2.134E 03	5.857E 02	6.317E-02	7.327E 02	1.551E 02	6.289E 02	2.749E 03
1.725E-02	3.22E-01	1.268E 00	1.403E 00	5.452E 00	2.142E 03	5.438E 02	1.390E-02	1.052E 02	7.001E 02	5.612E 02	2.390E 03
1.435E-02	9.999E-01	3.415E 00	1.405E 00	2.018E 00	2.143E 03	5.287E 02	5.293E-03	1.594E 03	1.826E 03	5.826E 02	2.361E 03
5.729E-03	1.002E 00	3.426E 00	1.405E 00	2.012E 00	2.143E 03	5.107E 02	2.263E-03	1.604E 03	1.834E 03	5.432E 02	2.361E 03
5.114E-04	9.705E-01	3.410E 00	1.405E 00	2.027E 00	2.145E 03	5.309E 02	5.186E-03	1.609E 03	1.812E 03	5.441E 02	2.369E 03
-9.727E-03	1.004E 00	3.432E 00	1.404E 00	2.009E 00	2.144E 03	5.361E 02	9.721E-03	1.611E 03	1.851E 03	5.452E 02	2.362E 03
-2.147E-02	9.551E-01	3.054E 00	1.405E 00	2.257E 00	2.138E 03	5.308E 02	3.803E-03	1.537E 03	1.641E 03	5.463E 02	2.361E 03
-2.944E-02	2.470E-02	3.145E-01	1.401E 00	2.074E 01	2.135E 03	5.506E 02	5.204E-02	6.846E 02	1.970E 02	3.705E 02	2.310E 03
-2.737E-02	6.830E-03	2.625E-01	1.399E 00	2.655E 01	2.134E 03	5.856E 02	6.702E-02	7.535E 02	1.670E 02	6.280E 02	2.740E 03
-1.044E-02	1.344E-03	2.450E-01	1.398E 00	2.866E 01	2.133E 03	5.942E 02	6.445E-02	7.444E 02	1.550E 02	6.366E 02	2.760E 03
-4.861E-02	3.150E-03	2.515E-01	1.398E 00	2.773E 01	2.125E 03	5.463E 02	6.355E-02	7.690E 02	1.607E 02	6.434E 02	2.774E 03
-4.707E-02	5.813E-03	2.667E-01	1.394E 00	2.617E 01	2.114E 03	5.762E 02	6.007E-02	6.001E 02	1.703E 02	6.441E 02	2.774E 03
-8.074E-02	1.803E-05	2.408E-01	1.398E 00	2.897E 01	2.101E 03	5.946E 02	6.255E-02	7.490E 02	1.540E 02	6.430E 02	2.775E 03

[illegible]

RIPE	091PTI	04100/SEC	04100/SEC	TTJRI	PTJPSF	CPJ00T/0 RI	GAMJ	MMJ00/PT 31	WJPT/SEC		
1.9104-01	0.1114-00	2.0610-02	2.0610-00	0.9910-02	2.0700-02	0.5130-00	1.4023-00	0.9900-01	0.1210-00		
RIPT/01	TSJRI	TSJRI	MDJ00T/01	ETJRI	PTJPSF	CPJ00T/0 RI	GAMJ	MMJ00/PT 31	WJPT/SEC		
1.9495-01	0.5124-02	1.0224-01	2.9470-02	1.0010-01	2.3210-03	2.9430-01	0.6070-00	0.9405-01	0.6040-02		
RIPT	C	CPJ00T/0 RI	GAM	MD	PTJPSF	TSJRI	MMJ00/PT 31	WJPT/SEC	MDJ00T/01	ETJRI	PTJPSF
9.1410-02	0.5077-03	2.5340-01	1.1770-00	2.8070-01	2.0530-01	1.0220-01	3.7130-02	0.7430-02	2.9420-02	1.0540-03	2.3320-03
7.1940-02	0.5097-04	2.5230-01	1.1770-00	2.8070-01	2.0530-01	1.0270-01	3.7240-02	0.7400-02	2.9460-02	1.0600-03	2.3320-03
9.4450-02	0.4440-04	2.5150-01	1.1770-00	2.8040-01	2.0530-01	1.0250-01	3.7450-02	0.7120-02	2.9720-02	1.0600-03	2.3300-03
5.1150-02	0.4340-04	2.5130-01	1.1770-00	2.8030-01	2.0540-01	1.0180-01	3.7470-02	0.7280-02	2.9730-02	1.0530-03	2.3310-03
4.3600-02	0.9260-03	2.7940-01	1.1800-00	2.5580-01	2.0540-01	0.9580-02	3.7470-02	0.7140-02	2.9600-02	0.9740-02	2.3240-03
1.2020-02	0.7005-02	3.1140-01	1.1970-00	1.1140-01	2.0500-01	0.7060-02	2.7400-02	0.8440-02	3.3030-02	1.7420-02	2.3370-02
7.2900-02	1.4140-01	0.9930-01	1.1990-00	1.0020-01	2.0460-01	0.6240-02	2.6030-02	0.9330-02	4.7220-02	0.9400-02	2.3700-02
2.7470-02	2.5450-01	1.0280-01	1.4030-00	0.7590-02	2.0400-01	0.1440-02	1.4520-02	1.1950-03	0.5450-02	0.8480-02	2.3570-02
2.2750-02	0.9770-01	1.4800-01	1.4010-00	0.4680-02	2.0400-01	1.0170-02	1.4580-02	1.1950-03	0.5450-02	0.8480-02	2.3580-02
1.0100-02	0.9770-01	1.4800-01	1.4010-00	0.4680-02	2.0400-01	1.0170-02	1.4580-02	1.1950-03	0.5450-02	0.8480-02	2.3580-02
1.1410-02	0.7540-01	2.6650-01	1.4020-00	2.5940-01	2.0200-01	0.5450-02	2.6190-03	2.7740-03	1.4030-01	0.6350-02	2.8640-03
0.1420-01	0.4310-01	2.9350-01	1.4020-00	2.3010-01	2.0200-01	0.5420-02	0.5630-03	2.4010-03	1.7290-03	0.6060-02	2.8670-03
0.0270-01	0.1100-01	3.1410-01	1.4020-00	2.1980-01	2.0210-01	0.5380-02	0.5390-03	3.0260-03	1.8440-03	0.5670-02	2.8680-03
1.8930-01	0.9310-01	1.2400-00	1.4020-00	2.1370-02	2.0240-01	0.5380-02	0.5200-03	3.0260-03	1.8440-03	0.5670-02	2.8680-03
1.1430-01	0.9310-01	3.2870-01	1.4020-00	2.1070-01	2.0260-01	0.5370-02	0.5130-03	3.0270-03	1.9180-03	0.5670-02	2.8680-03
0.7430-01	0.2470-01	3.2110-01	1.4020-00	2.1570-02	2.0270-01	0.5380-02	0.5250-03	3.0410-03	1.8780-03	0.5670-02	2.8670-03
1.0770-02	0.7340-01	2.7450-01	1.4020-00	2.5240-01	2.0240-01	0.5450-02	0.6005-03	2.8200-03	1.6240-03	0.6030-02	2.8770-03
1.8370-02	0.0720-01	1.4630-01	1.4010-00	1.7230-01	2.0210-01	0.5650-02	0.6070-03	2.1750-03	1.1270-03	0.1650-02	2.7270-03
2.1310-02	0.0720-01	1.5440-01	1.4010-00	1.4490-01	2.0240-01	0.5760-02	1.0190-02	1.8450-03	0.9330-02	0.6220-02	2.6320-03
2.2420-02	3.1820-01	1.2600-01	1.4030-00	0.5130-02	2.0280-01	0.9450-02	1.2170-02	1.5300-03	0.7360-02	0.3170-02	2.3540-03
2.7750-02	2.3540-01	0.9530-01	1.4030-00	0.9580-02	2.0330-01	0.1740-02	1.4680-02	1.3070-03	0.3350-02	0.5210-02	2.3580-02
1.0400-02	0.9770-01	1.5700-01	1.3990-00	0.1980-02	2.0340-01	0.2420-02	1.4620-02	1.0790-03	0.5770-02	0.4200-02	2.3630-02
1.0400-02	0.9770-01	1.5700-01	1.3990-00	0.1980-02	2.0340-01	0.2420-02	1.4620-02	1.0790-03	0.5770-02	0.4200-02	2.3630-02
1.7040-02	0.0220-02	0.3690-01	1.3940-00	1.1210-01	2.0450-01	0.9790-02	2.2950-02	0.7710-02	1.0710-02	1.2610-02	2.3500-03
0.0100-02	2.8270-02	1.3640-01	1.3900-00	1.2100-01	2.0420-01	0.9550-02	2.3250-02	0.7650-02	1.0410-02	0.8400-02	2.3140-03
0.3690-02	1.7090-02	2.4070-01	1.3830-00	2.5530-01	2.0540-01	0.5310-02	3.5610-02	0.7620-02	2.6440-02	0.4540-02	2.3180-03
0.5640-02	0.6790-01	2.6140-01	1.1300-00	2.7610-01	2.0550-01	0.9480-02	3.6270-02	0.7290-02	2.6030-02	1.0290-03	2.3270-03
0.5640-02	1.2440-03	0.5630-01	1.1780-00	2.8800-01	2.0550-01	1.0200-01	3.7150-02	0.6710-02	2.9400-02	1.0590-03	2.3270-03
0.7020-02	0.3800-04	2.5330-01	1.1770-00	2.4610-01	2.0550-01	1.0220-01	3.7250-02	0.6710-02	2.9450-02	1.0570-03	2.3310-03
0.6120-02	0.7490-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0200-01	3.7340-02	0.6720-02	2.9730-02	1.0590-03	2.3290-03
0.7490-02	0.9110-04	2.5330-01	1.1770-00	2.4630-01	2.0420-01	1.0240-01	3.7410-02	0.6760-02	2.9490-02	1.0600-03	2.3290-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310-03
0.7410-02	0.7030-04	2.5330-01	1.1770-00	2.4640-01	2.0540-01	1.0240-01	3.7470-02	0.6770-02	2.9500-02	1.0610-03	2.3310

RIEPI	ES1E1	CP18U2R A1	QAN	PS1PSP1	ES1H1	QMO18U2R A1	GAMJ	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1
2.6445E-01	6.0465E-02	2.0430E-02	2.0160E 00	5.4900E 02	2.7210E 03	2.6330E 00	1.4023E 00	6.9400E-03	3.1497E 03		
RIEPI	ES1E1	CP18U2R A1	QAN	PS1PSP1	ES1H1	QMO18U2R A1	GAMJ	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1
1.9441E 03	5.3141E 02	1.0301E 03	2.5729E 02	1.0454E 03	2.3220E 03	2.5054E-01	1.3768E 00	3.7384E-02	6.4944E 02		
RIEPI	C	CP18U2R A1	QAN	PS1PSP1	ES1H1	QMO18U2R A1	GAMJ	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1
8.044E-02	5.150E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
7.224E-02	6.860E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
6.457E-02	5.801E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
5.547E-02	4.734E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
5.257E-02	2.155E-03	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
4.340E-02	3.471E-02	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
4.067E-02	2.254E-02	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
3.373E-02	1.311E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
2.447E-02	2.637E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
2.312E-02	3.172E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.600E-02	4.575E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.307E-02	2.213E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
7.540E-03	2.277E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
4.442E-03	3.807E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.443E-03	7.071E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.134E-03	7.049E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
4.466E-03	3.807E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
7.412E-03	4.154E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.235E-02	4.421E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.724E-02	4.190E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
2.301E-02	2.377E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
2.021E-02	1.845E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.237E-02	1.135E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.446E-02	1.040E-01	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
4.124E-02	2.544E-02	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
4.005E-02	5.045E-03	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
5.240E-02	1.633E-03	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
4.744E-02	8.864E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
6.744E-02	3.744E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
5.247E-02	3.140E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
4.802E-02	7.021E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
6.077E-02	5.365E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.134E-01	5.147E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
1.304E-01	5.147E-04	2.5211E-01	1.377E 00	2.837E 01	2.052E 03	1.024E 03	3.733E-02	6.802E 02	2.577E 02	1.060E 03	2.333E 04
RIEPI	ES1E1	CP18U2R A1	QAN	PS1PSP1	ES1H1	QMO18U2R A1	GAMJ	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1
3.6401E-01	1.6731E-02	2.0430E-02	2.0160E 00	5.4900E 02	2.7210E 03	2.6330E 00	1.4023E 00	6.9400E-03	3.1497E 03		
RIEPI	ES1E1	CP18U2R A1	QAN	PS1PSP1	ES1H1	QMO18U2R A1	GAMJ	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1
1.9441E 03	5.3141E 02	1.0301E 03	2.5729E 02	1.0454E 03	2.3220E 03	2.5054E-01	1.3768E 00	3.7384E-02	6.4944E 02		
RIEPI	C	CP18U2R A1	QAN	PS1PSP1	ES1H1	QMO18U2R A1	GAMJ	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1	QMO18U2R A1
9.602E-02	4.740E-04	2.520E-01	1.180E 00	2.863E 01	2.044E 03	9.537E 02	3.454E-02	6.621E 02	2.484E 02	1.018E 03	2.321E 04
8.489E-02	8.800E-04	2.520E-01	1.180E 00	2.863E 01	2.044E 03	9.537E 02	3.454E-02	6.621E 02	2.484E 02	1.018E 03	2.321E 04
7.722E-02	8.490E-04	2.521E-01	1.177E 00	2.863E 01	2.044E 03	9.537E 02	3.454E-02	6.621E 02	2.484E 02	1.018E 03	2.321E 04
7.030E-02	9.519E-04	2.522E-01	1.177E 00	2.864E 01	2.044E 03	9.537E 02	3.454E-02	6.621E 02	2.484E 02	1.018E 03	2.321E 04
6.555E-02	7.142E-04	2.527E-01	1.177E 00	2.864E 01	2.044E 03	9.537E 02	3.454E-02	6.621E 02	2.484E 02	1.018E 03	2.321E 04
5.945E-02	1.952E-03	2.563E-01	1.170E 00	2.823E 01	2.052E 03	1.009E 03	3.737E-02	6.784E 02	2.586E 02	1.045E 03	2.330E 04
5.240E-02	9.472E-03	2.787E-01	1.146E 00	2.571E 01	2.050E 03	9.447E 02	3.612E-02	6.890E 02	2.650E 02	9.784E 02	2.326E 04
4.675E-02	1.453E-02	3.064E-01	1.187E 00	2.323E 01	2.047E 03	9.016E 02	3.415E-02	7.041E 02	2.749E 02	9.341E 02	2.326E 04
4.423E-02	3.350E-02	3.430E-01	1.342E 00	2.000E 03	2.047E 03	9.132E 02	3.190E-02	7.402E 02	2.990E 02	8.642E 02	2.331E 04
3.947E-02	7.574E-02	4.861E-01	1.196E 00	1.439E 01	2.042E 03	7.333E 02	2.994E-02	6.950E 02	2.650E 02	7.630E 02	2.355E 04
3.471E-02	1.034E-01	5.744E-01	1.177E 00	1.216E 01	2.040E 03	6.992E 02	2.293E-02	6.427E 02	6.127E 02	7.307E 02	2.374E 04
3.345E-02	1.120E-01	6.674E-01	1.194E 00	1.045E 01	2.037E 03	6.769E 02	2.035E-02	6.014E 02	4.450E 02	7.087E 02	2.394E 04
2.944E-02	1.771E-01	8.094E-01	1.199E 00	6.601E 00	2.033E 03	6.484E 02	1.744E-02	5.435E 02	6.834E 02	2.460E 03	2.460E 03
2.775E-02	2.521E-01	1.049E 00	6.624E 00	2.027E 03	6.167E 02	6.167E 02	1.410E-02	5.149E 02	6.744E 02	6.550E 02	2.504E 03
1.811E-02	3.215E-01	1.270E 00	4.000E 00	5.471E 00	2.023E 03	5.990E 02	1.196E-02	4.641E 02	7.493E 02	6.413E 02	2.569E 03
1.444E-02	3.550E-01	1.178E 00	4.000E 00	5.042E 00	2.021E 03	5.913E 02	1.115E-02	4.174E 02	6.806E 02	6.346E 02	2.615E 03
9.874E-03	4.255E-01	1.033E 00	4.131E 00	2.016E 03	5.800E 02	9.742E-03	2.015E 03	9.917E 02	6.104E 02	2.700E 03	
5.440E-03	4.937E-03	1.041E 00	4.104E 00	2.014E 03	5.784E 02	9.250E-03	2.101E 03	1.046E 03	6.105E 02	2.723E 03	
2.545E-03	4.744E-01	1.747E 00	4.131E 00	2.013E 03	5.757E 02	8.898E-03	2.170E 03	1.054E 03	6.248E 02	2.762E 03	
6.045E-03	6.927E-01	1.690E 00	4.105E 00	2.012E 03	5.737E 02	8.248E-03	2.110E 03	1.045E 03	6.103E 02	2.735E 03	
8.444E-03	4.254E-01	1.112E 00	4.101E 00	2.010E 03	5.712E 02	7.606E-03	2.015E 03	1.000E 03	6.123E 02	2.702E 03	
1.544E-02	3.445E-03	3.160E 00	3.000E 00	5.107E 00	2.017E 03	5.947E 02	1.121E-02	4.757E 02	6.841E 02	2.600E 03	
2.030E-02	2.800E-01	1.113E 00	4.000E 00	6.107E 00	2.022E 03	6.114E 02	1.107E-02	4.520E 02	6.521E 02	2.531E 03	
2.477E-02	1.244E-01	8.277E-01	1.193E 00	6.411E 00	2.030E 03	6.473E 02	1.107E-02	4.154E 02	5.544E 02	6.418E 02	2.436E 03
3.623E-02	1.024E-01	5.711E-01	1.197E 00	1.222E 01	2.034E 03	7.087E 02	2.275E-02	4.157E 02	4.157E 02	7.399E 02	2.371E 03
4.127E-02	5.123E-02	4.084E-03	1.194E 00	1.714E 01	2.045E 03	7.064E 02	2.657E-02	7.012E 02	4.320E 02	8.270E 02	2.336E 03
5.135E-02	1.177E-02	2.949E-01	1.146E 00	2.419E 01	2.050E 03	9.231E 02	3.478E-02	6.954E 02	2.747E 02	9.559E 02	2.324E 03
4.444E-02	2.153E-03	2.573E-01	1.175E 00	2.815E 01	2.041E 03	9.019E 03	3.468E-02	6.936E 02	2.202E 02	1.055E 03	2.330E 03
6.772E-02	1.161E-03	2.443E-01	1.177E 00	2.853E 01	2.041						

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01PT1	054PT1	0110M/SEC1	0110M/MOL1	TT101	PT10P1	CP1010W/01	GAMJ	0110M/PT11	0110M/SEC1		
1.0000-01	0.0000-02	1.0750E-02	2.0100E-00	9.0120E-02	2.9300E-03	3.4310E-00	1.4027E-00	0.0010E-03	2.0000E-03		
0110M/01	TT101	TT0101	0110M/01	TT0101	PT10P1	CP1010W/01	GAMJ	0110M/PT11	0110M/SEC1		
1.0170E-03	0.0500E-02	0.9972E-02	2.9247E-02	1.0401E-03	2.4272E-03	2.4990E-01	1.3770E-00	0.0500E-02	7.0220E-02		
01PT1	C	CP1010W/01	GAM	MJ	PT10P1	TT101	0110M/PT11	0110M/SEC1	0110M/01	TT101	PT10P1
0.437E-02	2.445E-04	2.504E-01	1.370E-00	2.047E-01	2.050E-03	9.999E-02	3.643E-02	7.750E-02	2.510E-02	1.047E-03	2.439E-03
7.042E-02	3.045E-04	2.511E-01	1.370E-00	2.047E-01	2.050E-03	9.999E-02	3.643E-02	7.750E-02	2.510E-02	1.047E-03	2.439E-03
0.437E-02	3.045E-04	2.504E-01	1.370E-00	2.047E-01	2.050E-03	9.999E-02	3.643E-02	7.750E-02	2.510E-02	1.047E-03	2.439E-03
4.023E-02	3.321E-04	2.513E-01	1.370E-00	2.047E-01	2.050E-03	9.999E-02	3.643E-02	7.750E-02	2.510E-02	1.047E-03	2.439E-03
4.130E-02	3.311E-04	2.512E-01	1.370E-00	2.047E-01	2.050E-03	9.999E-02	3.643E-02	7.750E-02	2.510E-02	1.047E-03	2.439E-03
3.704E-02	2.295E-02	2.104E-01	1.391E-00	2.217E-01	2.050E-03	9.999E-02	3.643E-02	7.750E-02	2.510E-02	1.047E-03	2.439E-03
3.451E-02	5.244E-02	4.111E-01	1.395E-00	1.702E-01	2.052E-03	7.662E-02	3.020E-02	7.931E-02	3.140E-02	7.707E-02	2.363E-03
3.127E-02	7.736E-02	9.352E-01	1.398E-00	1.257E-01	2.049E-03	6.925E-02	2.407E-02	4.907E-02	3.304E-02	7.212E-02	2.361E-03
2.814E-02	1.529E-01	7.340E-01	1.399E-00	4.746E-01	2.040E-03	6.914E-02	1.924E-02	1.021E-03	4.910E-02	6.707E-02	2.375E-03
2.643E-02	2.124E-01	9.217E-01	1.400E-00	7.943E-01	2.040E-03	6.200E-02	1.586E-02	1.148E-03	4.971E-02	6.595E-02	2.612E-03
2.190E-02	2.670E-01	1.000E-00	1.400E-00	6.323E-01	2.040E-03	6.130E-02	1.342E-02	1.355E-03	4.971E-02	6.595E-02	2.612E-03
1.644E-02	1.322E-01	1.000E-00	1.400E-00	3.254E-01	2.037E-03	6.005E-02	1.134E-02	1.444E-03	4.971E-02	6.595E-02	2.612E-03
1.504E-02	4.043E-01	1.541E-00	1.401E-00	4.474E-01	2.033E-03	5.914E-02	9.968E-03	1.724E-03	4.971E-02	6.595E-02	2.612E-03
1.194E-02	4.040E-01	1.005E-00	1.401E-00	3.043E-01	2.031E-03	5.824E-02	8.661E-03	1.890E-03	1.102E-03	6.220E-02	2.557E-03
0.707E-03	5.168E-01	2.027E-00	1.401E-00	3.409E-01	2.033E-03	5.774E-02	7.731E-03	2.017E-03	1.235E-03	6.170E-02	2.364E-03
5.179E-03	4.440E-01	2.100E-00	1.401E-00	3.015E-01	2.033E-03	5.742E-02	6.907E-03	2.142E-03	1.395E-03	6.140E-02	2.490E-03
2.394E-03	4.855E-01	2.374E-00	1.401E-00	2.913E-01	2.033E-03	5.741E-02	6.601E-03	2.170E-03	1.432E-03	6.139E-02	2.367E-03
-0.407E-04	6.222E-01	2.422E-00	1.401E-00	2.462E-01	2.034E-03	5.745E-02	6.607E-03	2.191E-03	1.459E-03	6.140E-02	2.367E-03
-0.390E-04	6.414E-01	2.324E-00	1.401E-00	2.464E-01	2.034E-03	5.745E-02	6.622E-03	2.150E-03	1.401E-03	6.156E-02	2.567E-03
-7.022E-03	6.044E-01	2.174E-00	1.401E-00	1.154E-01	2.034E-03	5.745E-02	7.261E-03	2.001E-03	1.319E-03	6.177E-02	2.566E-03
-1.437E-02	6.044E-01	1.925E-00	1.401E-00	4.512E-01	2.033E-03	5.710E-02	1.001E-02	1.720E-03	9.537E-02	6.117E-02	2.537E-03
-2.040E-02	2.054E-01	1.091E-00	1.400E-00	6.350E-01	2.036E-03	6.141E-02	1.346E-02	1.770E-03	6.900E-02	4.464E-02	2.454E-03
-2.744E-02	1.634E-01	7.010E-01	1.399E-00	4.929E-01	2.042E-03	6.602E-02	1.968E-02	1.021E-03	4.754E-02	6.994E-02	2.342E-03
-3.409E-02	4.455E-02	3.871E-01	1.394E-00	1.016E-01	2.051E-03	7.822E-02	3.061E-02	7.904E-02	2.007E-02	8.144E-02	2.366E-03
-4.225E-02	7.212E-01	2.712E-01	1.393E-00	2.424E-01	2.055E-02	9.400E-02	3.740E-02	7.642E-02	2.492E-02	9.020E-02	2.413E-03
-4.804E-02	9.075E-04	2.520E-01	1.370E-00	2.042E-01	2.057E-02	9.927E-02	3.056E-02	7.707E-02	2.527E-02	1.035E-02	2.424E-03
-5.872E-02	4.922E-04	2.510E-01	1.370E-00	2.047E-01	2.055E-02	9.967E-02	2.630E-02	7.757E-02	2.540E-02	1.044E-02	2.428E-03
-6.742E-02	4.240E-04	2.511E-01	1.370E-00	2.047E-01	2.055E-02	9.967E-02	2.630E-02	7.757E-02	2.540E-02	1.044E-02	2.428E-03
-7.536E-02	4.073E-04	2.512E-01	1.370E-00	2.046E-01	2.044E-02	9.961E-02	2.630E-02	7.760E-02	2.540E-02	1.044E-02	2.428E-03
-8.344E-02	5.467E-04	2.512E-01	1.370E-00	2.046E-01	2.053E-02	9.944E-02	2.641E-02	7.750E-02	2.534E-02	1.044E-02	2.428E-03
-9.368E-02	7.805E-04	2.512E-01	1.370E-00	2.046E-01	2.053E-02	9.930E-02	2.636E-02	7.746E-02	2.534E-02	1.044E-02	2.428E-03
-1.204E-01	4.410E-04	2.504E-01	1.360E-00	2.040E-01	2.053E-02	9.880E-02	2.640E-02	7.804E-02	2.540E-02	1.044E-02	2.428E-03
01PT1	C	CP1010W/01	GAM	MJ	PT10P1	TT101	0110M/PT11	0110M/SEC1	0110M/01	TT101	PT10P1
0.100E-02	2.726E-04	2.506E-01	1.370E-00	2.046E-01	2.054E-03	9.951E-02	3.657E-02	7.745E-02	2.526E-02	1.043E-03	2.437E-03
0.074E-02	1.020E-04	2.504E-01	1.370E-00	2.046E-01	2.054E-03	9.951E-02	3.657E-02	7.745E-02	2.526E-02	1.043E-03	2.437E-03
0.097E-02	1.509E-04	2.506E-01	1.370E-00	2.046E-01	2.054E-03	9.951E-02	3.657E-02	7.745E-02	2.526E-02	1.043E-03	2.437E-03
3.091E-02	3.311E-04	2.511E-01	1.370E-00	2.046E-01	2.054E-03	9.951E-02	3.657E-02	7.745E-02	2.526E-02	1.043E-03	2.437E-03
3.234E-02	4.042E-04	2.511E-01	1.370E-00	2.046E-01	2.054E-03	9.951E-02	3.657E-02	7.745E-02	2.526E-02	1.043E-03	2.437E-03
4.304E-02	2.046E-02	2.554E-01	1.390E-00	2.414E-01	2.054E-03	9.722E-02	3.647E-02	7.676E-02	2.923E-02	1.016E-03	2.431E-03
3.614E-02	2.944E-02	2.520E-01	1.391E-00	2.141E-01	2.052E-03	8.205E-02	3.484E-02	7.601E-02	2.734E-02	9.551E-02	2.383E-03
3.227E-02	6.515E-02	5.137E-01	1.397E-00	1.353E-01	2.049E-03	7.077E-02	2.439E-02	6.703E-02	3.736E-02	7.370E-02	2.363E-03
2.612E-02	1.750E-01	6.091E-01	1.399E-00	6.046E-01	2.043E-03	6.442E-02	1.773E-02	1.107E-03	5.337E-02	6.744E-02	2.401E-03
2.294E-02	2.220E-01	6.950E-01	1.400E-00	7.202E-01	2.041E-03	6.260E-02	1.532E-02	1.227E-03	6.190E-02	6.490E-02	2.420E-03
2.004E-02	2.044E-01	1.094E-00	1.400E-00	4.351E-01	2.038E-03	6.168E-02	1.599E-02	1.374E-03	6.494E-02	6.412E-02	2.405E-03
1.434E-02	1.611E-01	1.419E-00	1.400E-00	4.492E-01	2.034E-03	5.991E-02	1.075E-02	1.644E-03	6.877E-02	6.371E-02	2.522E-03
1.141E-02	4.190E-01	1.982E-00	1.401E-00	4.308E-01	2.032E-03	6.910E-02	9.731E-03	1.700E-03	6.002E-02	6.314E-02	2.347E-03
0.454E-00	4.714E-01	1.730E-00	1.401E-00	3.965E-01	2.031E-03	5.571E-02	8.791E-03	1.893E-03	2.076E-02	6.279E-02	2.504E-03
9.120E-04	9.166E-01	1.495E-00	1.401E-00	3.662E-01	2.030E-03	6.454E-02	6.222E-03	1.943E-03	1.164E-02	6.264E-02	2.578E-03
2.151E-03	9.044E-01	2.047E-00	1.401E-00	3.190E-01	2.030E-03	5.521E-02	7.641E-02	2.045E-02	1.232E-02	6.237E-02	2.344E-03
-9.439E-04	5.572E-01	2.024E-00	1.401E-00	3.124E-01	2.030E-03	5.628E-02	7.730E-02	2.052E-02	1.239E-02	6.241E-02	2.502E-03
-3.082E-03	5.479E-01	1.994E-00	1.401E-00	3.440E-01	2.030E-03	5.632E-02	7.729E-02	2.034E-02	1.222E-02	6.240E-02	2.501E-03
-1.010E-02	4.420E-01	1.650E-00	1.401E-00	4.192E-01	2.031E-03	5.920E-02	9.300E-02	1.637E-02	1.029E-02	6.332E-02	2.561E-03
-1.325E-02	2.077E-01	1.480E-00	1.400E-00	4.604E-01	2.031E-03	5.973E-02	1.027E-02	1.714E-02	9.301E-02	6.367E-02	2.360E-03
-2.150E-02	2.473E-01	1.034E-00	1.400E-00	6.727E-01	2.031E-03	6.221E-02	1.422E-02	1.317E-02	6.675E-02	6.576E-02	2.459E-03
-2.782E-02	1.000E-01	7.220E-01	1.399E-00	9.630E-01	2.042E-02	6.610E-02	1.927E-02	1.054E-02	4.914E-02	6.917E-02	2.394E-03
-3.536E-02	5.726E-02	4.272E-01	1.395E-00	1.441E-01	2.049E-02	7.544E-02	2.645E-02	6.173E-02	3.300E-02	7.647E-02	2.364E-03
-4.147E-02	1.689E-02	2.976E-01	1.397E-00	2.189E-01	2.054E-02	8.944E-02	3.991E-02	7.636E-02	2.694E-02	9.234E-02	2.398E-03
-6.006E-02	2.097E-02	2.506E-01	1.390E-00	2.410E-01	2.044E-02	7.764E-02	3.940E-02	7.004E-02	2.434E-02	1.023E-02	2.432E-03
-9.250E-02	2.311E-04	2.505E-01	1.370E-00	2.040E-01	2.036E-03	9.904E-02	3.881E-02	7.710E-02	2.512E-02	1.030E-03	2.637E-03
-5.049E-02	3.014E-04	2.508E-01	1.370E-00	2.040E-01	2.036E-03	9.944E-02	3.541E-02	7.721E-02	2.524E-02	1.042E-03	2.437E-03
-4.105E-02	3.057E-04	2.911E-01	1.370E-00	2.043E-01	2.045E-03	9.944E-02	3.540E-02	7.726E-02	2.529E-02	1.049E-03	2.441E-03
-6.036E-02	2.955E-04	2.507E-01	1.370E-00	2.040E-01	2.045E-03	9.908E-02	3.953E-02	7.737E-02	2.529E-02	1.044E-03	2.436E-03
-8.213E-02	9.207E-04	2.529E-01	1.370E-00	2.042E-01	2.054E-03	9.956E-02	4.221E-02	7.704E-02	2.549E-02	1.043E-03	2.438E-03
-9.369E-02	1.021E-03	2.531E-01	1.370E-00	2.050E-01	2.054E-03	9.921E-02	3.931E-02	7.789E-02	2.543E-02	1.040E-03	2.439E-03
-1.134E-01	2.710E-04	2.502E-01	1.370E-00	2.047E-01	2.054E-03	9.794E-02	3.919E-02	7.748E-02	2.541E-02	1.036E-03	2.433E-03

01P21	00P01	M410/SAC1	M410/M/ML1	ETJ101	PTJ1P5P1	CPJ107U/0 01	GAM1	M410/M/PT 21	M410/SEC1
1.1344E-01	7.1304E-02	1.4754E-02	2.0164E-01	0.0145E-02	2.0164E-01	3.3914E-01	1.4027E-01	4.0920E-01	0.3769E-01
M1027U/01	TJ1011	E20403	M1027U/01	TJ1011	PTJ1P5P1	CPJ107U/0 01	GAM1	M410/M/PT 21	M410/SEC1
1.0379E-03	5.3377E-04	0.0949E-02	2.3254E-02	1.0433E-02	2.4275E-03	2.4099E-01	1.3772E-01	1.0556E-02	7.6207E-02
01E11	C	CPJ107U/0 01	GAM1	M410/M/PT 21	M410/SEC1				
0.070E-02	5.221E-04	2.0171E-01	1.0700E-01	2.0770E-01	2.0320E-01	0.9468E-02	2.032E-02	7.7092E-02	2.639E-02
0.021E-02	2.714E-04	2.510E-01	1.270E-01	2.0790E-01	2.0320E-01	0.9468E-02	2.032E-02	7.7092E-02	2.639E-02
2.114E-02	4.350E-04	2.519E-01	1.370E-01	2.0790E-01	2.0320E-01	0.9468E-02	2.032E-02	7.7092E-02	2.639E-02
0.097E-02	0.346E-04	2.519E-01	1.370E-01	2.0790E-01	2.0320E-01	0.9468E-02	2.032E-02	7.7092E-02	2.639E-02
5.212E-02	2.519E-04	2.519E-01	1.370E-01	2.0790E-01	2.0320E-01	0.9468E-02	2.032E-02	7.7092E-02	2.639E-02
0.047E-02	0.346E-04	2.519E-01	1.370E-01	2.0790E-01	2.0320E-01	0.9468E-02	2.032E-02	7.7092E-02	2.639E-02
4.214E-02	2.519E-04	2.519E-01	1.370E-01	2.0790E-01	2.0320E-01	0.9468E-02	2.032E-02	7.7092E-02	2.639E-02
3.104E-02	0.346E-04	2.519E-01	1.370E-01	2.0790E-01	2.0320E-01	0.9468E-02	2.032E-02	7.7092E-02	2.639E-02
2.047E-02	1.040E-01	0.931E-01	1.370E-01	1.177E-01	2.043E-01	0.607E-02	2.294E-02	0.601E-02	6.206E-02
2.331E-02	1.401E-01	0.931E-01	1.370E-01	1.000E-01	2.041E-01	0.601E-02	1.904E-02	1.047E-03	6.734E-02
2.315E-02	1.356E-01	0.727E-01	1.299E-01	0.601E-02	2.039E-01	0.566E-02	1.917E-02	1.126E-03	5.220E-02
1.990E-02	0.337E-01	0.909E-01	1.099E-01	0.744E-02	2.037E-01	0.676E-02	1.977E-02	1.222E-03	5.939E-02
1.314E-02	2.999E-01	1.0731E-01	1.400E-01	0.631E-02	2.034E-01	0.617E-02	1.772E-02	0.933E-02	6.420E-02
7.347E-02	2.962E-01	1.170E-01	1.400E-01	0.581E-02	2.031E-01	0.617E-02	1.772E-02	0.933E-02	6.420E-02
2.315E-02	1.356E-01	0.727E-01	1.299E-01	0.601E-02	2.039E-01	0.566E-02	1.917E-02	1.126E-03	5.220E-02
2.331E-02	1.401E-01	0.931E-01	1.370E-01	1.000E-01	2.041E-01	0.601E-02	1.904E-02	1.047E-03	6.734E-02
2.315E-02	1.356E-01	0.727E-01	1.299E-01	0.601E-02	2.039E-01	0.566E-02	1.917E-02	1.126E-03	5.220E-02
1.990E-02	0.337E-01	0.909E-01	1.099E-01	0.744E-02	2.037E-01	0.676E-02	1.977E-02	1.222E-03	5.939E-02
1.314E-02	2.999E-01	1.0731E-01	1.400E-01	0.631E-02	2.034E-01	0.617E-02	1.772E-02	0.933E-02	6.420E-02
7.347E-02	2.962E-01	1.170E-01	1.400E-01	0.581E-02	2.031E-01	0.617E-02	1.772E-02	0.933E-02	6.420E-02
2.315E-02	1.356E-01	0.727E-01	1.299E-01	0.601E-02	2.039E-01	0.566E-02	1.917E-02	1.126E-03	5.220E-02
2.331E-02	1.401E-01	0.931E-01	1.370E-01	1.000E-01	2.041E-01	0.601E-02	1.904E-02	1.047E-03	6.734E-02
2.315E-02	1.356E-01	0.727E-01	1.299E-01	0.601E-02	2.039E-01	0.566E-02	1.917E-02	1.126E-03	5.220E-02
1.990E-02	0.337E-01	0.909E-01	1.099E-01	0.744E-02					

24711	C	CF107U/01	Mu	P31P5F1	70181	RM0104/77.31	U107/3EC1	M1070/01	ET101	P71P5F1		
24742-02	5.6767-03	2.624E-01	1.3033	00	2.730E 01	2.0423 03	2.249E 02	3.002E-02	1.731E 02	2.472E 02	0.6073 02	2.6163 03
24753-02	0.9077-03	2.748E-01	1.309F	00	0.6010 01	2.044E 03	0.125E 02	1.770E-02	7.713F 02	2.547E 02	0.556F 02	2.614E 03
24764-02	1.6004E-02	2.902E-01	1.307E 00	2.305E 01	2.044E 03	0.641F 02	0.569E-02	7.929F 02	2.647F 02	0.242F 02	2.6183 03	
24765-00	2.304E-02	3.3027E-01	1.300E 00	2.142E 01	2.044E 03	0.602F 02	0.372F-02	0.605E 02	2.645E 02	0.7973 02	2.4073 03	
24782-02	3.8503-02	3.6043-01	1.302E 00	1.913E 01	2.043E 03	0.694F 02	1.312E-02	6.413F 02	1.066E 02	0.442E 02	2.608E 03	
24783-02	5.6103-02	1.195E-01	1.670E 01	2.043E 03	7.715E 02	2.670E-02	0.626E 02	1.366E 02	0.106F 02	2.608E 03		
24790-02	3.304E-02	1.395E-01	1.395E 00	2.043E 03	7.701E 02	2.670E-02	0.626E 02	1.366E 02	0.106F 02	2.608E 03		
24795-02	7.0004E-02	0.939E-01	1.396F 00	1.411E 01	2.0423 03	7.421E 02	2.524F-02	0.548E 02	1.700F 02	2.700F 02	2.417E 03	
24803-02	0.2474E-02	0.879E-01	1.396E 00	1.373F 01	2.042E 03	7.351E 02	2.477F-02	0.542E 02	1.750F 02	2.712E 02	2.418E 03	
24810-03	0.6049E-02	0.335E-01	1.396E 00	1.311E 01	2.041E 03	7.274F 02	2.481F-02	0.634E 02	0.400E 02	2.708E 02	2.423E 03	
24814-03	0.504E-01	5.494E-01	1.397E 00	1.271E 01	2.041E 03	7.184F 02	2.398F-02	0.940E 02	0.407E 02	2.743F 02	2.424F 03	
24819-03	0.504E-01	5.494E-01	1.397E 00	1.271E 01	2.041E 03	7.187E 02	2.349F-02	0.920E 02	0.404E 02	2.750F 02	2.423E 03	
24820-03	0.300E-01	3.604E-01	1.397E 00	1.203E 01	2.041E 03	7.210E 02	2.393E-02	0.924F 02	0.405E 02	2.750E 02	2.425E 03	
24821E-03	0.300E-01	3.604E-01	1.397E 00	1.203E 01	2.041E 03	7.210E 02	2.393E-02	0.924F 02	0.405E 02	2.750E 02	2.425E 03	
24832-02	0.6043E-02	3.270E-01	1.396F 00	1.327E 01	2.042E 03	7.294F 02	2.405E-02	0.716E 02	1.905F 02	2.554E 02	2.425E 03	
24847-02	7.849E-02	0.933E-01	1.398F 00	1.415E 01	2.043F 03	7.404F 02	2.523F-02	0.470E 02	1.781E 02	2.746E 02	2.416F 03	
24849-02	0.303E-02	0.604E-01	1.393F 00	1.563E 01	2.043F 03	7.679E 02	2.692F-02	0.9733 02	1.547E 02	0.604E 02	2.404E 03	
24849E-02	0.604E-02	0.393E-01	1.393F 00	1.709E 01	2.044E 03	7.604F 02	2.687F-02	0.553F 02	1.201E 02	0.276F 02	2.404E 03	
24852-02	3.304E-02	3.503E-01	1.192E 00	1.9923 01	2.044E 03	0.243F 02	3.198F-02	0.279E 02	0.297F 02	0.629E 02	2.406F 03	
24860F-02	1.020F-02	3.051E-01	1.308E 00	2.220E 01	2.044F 03	0.780E 02	3.510F-02	7.930E 02	2.740F 02	0.192E 02	2.608E 03	
24861F-02	0.270F-02	3.051E-01	1.308E 00	2.220E 01	2.044F 03	0.780E 02	3.510F-02	7.930E 02	2.740F 02	0.192E 02	2.608E 03	
24862-02	2.767F-03	2.570E-01	1.302F 00	2.794E 01	2.043E 03	0.780E 02	3.510F-02	7.930E 02	2.740F 02	0.192E 02	2.608E 03	
24874E-02	0.495E-04	2.495E-01	1.394E 00	2.670E 01	2.035F 03	0.119E 02	4.147E-02	7.141E 02	2.314E 02	0.927E 02	2.3	

TEST NUMBER - II C

Jet Gas - Hydrogen
Outer Stream Gas - Air

[illegible]

[illegible]

TEST NUMBER - III

Jet Gas - Hydrogen
Outer Stream Gas - Air

X(FT)	R(FT)	WJ(M/SEC)	MW(M/MOLE)	TF(JR)	PTJ(P5F)	CPJ(BTU/R)	GAMJ	RHOJ(M/FT)	UJ(FT/SEC)		
2.0795E-02	4.4017E-02	1.0142E-01	2.8970E-01	5.3486E-02	3.3812E-03	2.3980E-01	1.4003E-00	8.2553E-02	9.3214E-02		
MJ(BTU/R)	TS(JR)	TSO(JR)	MO(BTU/R)	TTO(JR)	PTO(P5F)	CPJ(BTU/R)	GAMJ	RHOJ(M/FT)	UJ(FT/SEC)		
1.2783E-02	4.6245E-02	6.6954E-02	1.6286E-02	6.8055E-02	2.1855E-03	2.4132E-01	1.3945E-00	5.7701E-02	3.5486E-02		
R(FT)	C	CPJ(BTU/R)	GAM	MW	PS(P5F)	TS(JR)	RHOJ(M/FT)	UJ(FT/SEC)	HISTU(JR)	TT(JR)	PT(P5F)
1.010E-01	2.267E-02	2.413E-01	1.397E-00	2.897E-01	2.053E-03	6.650E-02	5.788E-02	3.642E-02	1.621E-02	6.773E-02	2.188E-03
8.711E-02	1.220E-02	2.413E-01	1.397E-00	2.897E-01	2.056E-03	6.66E-02	5.780E-02	3.401E-02	1.624E-02	6.788E-02	2.188E-03
7.491E-02	9.485E-03	2.413E-01	1.397E-00	2.897E-01	2.058E-03	6.675E-02	5.781E-02	3.762E-02	1.625E-02	6.792E-02	2.188E-03
6.838E-02	1.302E-02	2.413E-01	1.397E-00	2.897E-01	2.061E-03	6.673E-02	5.792E-02	3.710E-02	1.624E-02	6.787E-02	2.188E-03
3.397E-02	1.146E-02	2.413E-01	1.397E-00	2.897E-01	2.065E-03	6.646E-02	5.823E-02	3.658E-02	1.619E-02	6.760E-02	2.188E-03
2.717E-02	1.079E-02	2.411E-01	1.397E-00	2.897E-01	2.068E-03	6.538E-02	5.909E-02	3.655E-02	1.591E-02	6.649E-02	2.188E-03
1.870E-02	1.002E-02	2.398E-01	1.400E-00	2.897E-01	2.038E-03	6.624E-02	5.864E-02	3.911E-02	1.278E-02	5.346E-02	3.385E-03
9.695E-03	9.921E-03	2.398E-01	1.400E-00	2.897E-01	2.036E-03	6.635E-02	5.834E-02	4.334E-02	1.281E-02	5.360E-02	3.385E-03
-2.865E-05	9.856E-03	2.398E-01	1.400E-00	2.897E-01	2.036E-03	6.643E-02	5.823E-02	4.341E-02	1.283E-02	5.370E-02	3.385E-03
-1.381E-02	9.63E-03	2.398E-01	1.400E-00	2.897E-01	2.047E-03	6.679E-02	5.820E-02	4.312E-02	1.291E-02	5.402E-02	3.384E-03
-2.312E-02	7.056E-03	2.401E-01	1.400E-00	2.897E-01	2.057E-03	6.674E-02	5.812E-02	4.312E-02	1.381E-02	5.778E-02	2.831E-03
-3.076E-02	6.667E-02	2.412E-01	1.397E-00	2.897E-01	2.060E-03	6.594E-02	5.855E-02	3.637E-02	1.605E-02	6.709E-02	2.186E-03
-4.267E-02	1.311E-02	2.413E-01	1.397E-00	2.897E-01	2.061E-03	6.673E-02	5.793E-02	3.708E-02	1.624E-02	6.796E-02	2.188E-03
-6.448E-02	1.000E-02	2.413E-01	1.397E-00	2.897E-01	2.059E-03	6.697E-02	5.764E-02	3.744E-02	1.631E-02	6.916E-02	2.188E-03
-9.071E-02	1.895E-03	2.413E-01	1.397E-00	2.897E-01	2.059E-03	6.739E-02	5.778E-02	3.832E-02	1.628E-02	6.793E-02	2.188E-03
-1.221E-01	3.677E-02	2.413E-01	1.397E-00	2.897E-01	2.059E-03	6.635E-02	5.807E-02	3.838E-02	1.616E-02	6.755E-02	2.188E-03
-1.252E-01	3.389E-02	2.412E-01	1.397E-00	2.897E-01	2.055E-03	6.636E-02	5.806E-02	3.812E-02	1.617E-02	6.756E-02	2.188E-03
-1.2E-01	3.498E-02	2.412E-01	1.397E-00	2.897E-01	2.055E-03	6.635E-02	5.807E-02	3.839E-02	1.616E-02	6.755E-02	2.188E-03
X(FT)	R(FT)	WJ(M/SEC)	MW(M/MOLE)	TF(JR)	PTJ(P5F)	CPJ(BTU/R)	GAMJ	RHOJ(M/FT)	UJ(FT/SEC)		
7.9097E-02	4.9810E-02	1.0152E-01	2.8970E-01	5.3505E-02	3.3908E-03	2.3980E-01	1.4003E-00	8.2294E-02	9.3762E-02		
MJ(BTU/R)	TS(JR)	TSO(JR)	MO(BTU/R)	TTO(JR)	PTO(P5F)	CPJ(BTU/R)	GAMJ	RHOJ(M/FT)	UJ(FT/SEC)		
1.2783E-02	4.6189E-02	6.7545E-02	1.6457E-02	6.8762E-02	2.1846E-03	2.4142E-01	1.3945E-00	5.6993E-02	3.8042E-02		
R(FT)	C	CPJ(BTU/R)	GAM	MW	PS(P5F)	TS(JR)	RHOJ(M/FT)	UJ(FT/SEC)	HISTU(JR)	TT(JR)	PT(P5F)
7.671E-02	1.198E-02	2.414E-01	1.397E-00	2.897E-01	2.052E-03	6.735E-02	5.714E-02	3.861E-02	1.641E-02	6.958E-02	2.188E-03
6.399E-02	9.975E-03	2.414E-01	1.397E-00	2.897E-01	2.054E-03	6.739E-02	5.713E-02	3.848E-02	1.642E-02	6.961E-02	2.188E-03
5.039E-02	1.441E-02	2.414E-01	1.397E-00	2.897E-01	2.054E-03	6.732E-02	5.720E-02	3.850E-02	1.640E-02	6.954E-02	2.188E-03
3.952E-02	2.532E-02	2.414E-01	1.397E-00	2.897E-01	2.054E-03	6.715E-02	5.735E-02	3.849E-02	1.636E-02	6.938E-02	2.188E-03
3.225E-02	3.535E-02	2.413E-01	1.397E-00	2.897E-01	2.053E-03	6.699E-02	5.745E-02	3.856E-02	1.633E-02	6.822E-02	2.188E-03
2.382E-02	7.113E-01	2.401E-01	1.400E-00	2.897E-01	2.043E-03	5.372E-02	7.129E-02	7.106E-02	1.385E-02	5.742E-02	2.658E-03
1.644E-02	9.33E-01	2.398E-01	1.400E-00	2.897E-01	2.029E-03	4.631E-02	8.217E-02	9.361E-02	1.291E-02	5.360E-02	3.385E-03
5.889E-03	9.803E-01	2.398E-01	1.400E-00	2.897E-01	2.027E-03	4.646E-02	8.181E-02	9.394E-02	1.286E-02	5.381E-02	3.387E-03
-5.564E-03	9.856E-01	2.398E-01	1.400E-00	2.897E-01	2.027E-03	4.666E-02	8.147E-02	9.410E-02	1.291E-02	5.403E-02	3.386E-03
-1.354E-02	9.553E-01	2.398E-01	1.400E-00	2.897E-01	2.029E-03	4.666E-02	8.150E-02	9.407E-02	1.291E-02	5.402E-02	3.386E-03
-2.575E-02	2.266E-01	2.410E-01	1.398E-00	2.897E-01	2.051E-03	6.721E-02	5.698E-02	4.104E-02	1.570E-02	6.525E-02	2.212E-03
-3.937E-02	1.138E-02	2.414E-01	1.397E-00	2.897E-01	2.054E-03	6.723E-02	5.727E-02	3.815E-02	1.633E-02	6.844E-02	2.188E-03
-4.635E-02	9.518E-03	2.414E-01	1.397E-00	2.897E-01	2.053E-03	6.741E-02	5.711E-02	3.817E-02	1.642E-02	6.862E-02	2.188E-03
-5.465E-02	4.366E-03	2.414E-01	1.397E-00	2.897E-01	2.053E-03	6.749E-02	5.703E-02	3.817E-02	1.644E-02	6.870E-02	2.188E-03
-6.719E-02	6.72E-04	2.414E-01	1.397E-00	2.897E-01	2.052E-03	6.754E-02	5.697E-02	3.835E-02	1.645E-02	6.875E-02	2.188E-03
-7.710E-02	1.331E-03	2.414E-01	1.397E-00	2.897E-01	2.052E-03	6.752E-02	5.697E-02	3.842E-02	1.645E-02	6.874E-02	2.188E-03
-9.025E-02	6.794E-03	2.414E-01	1.397E-00	2.897E-01	2.052E-03	6.743E-02	5.705E-02	3.849E-02	1.643E-02	6.866E-02	2.188E-03
-1.122E-01	1.988E-02	2.414E-01	1.397E-00	2.897E-01	2.052E-03	6.722E-02	5.723E-02	3.869E-02	1.639E-02	6.846E-02	2.188E-03
X(FT)	R(FT)	WJ(M/SEC)	MW(M/MOLE)	TF(JR)	PTJ(P5F)	CPJ(BTU/R)	GAMJ	RHOJ(M/FT)	UJ(FT/SEC)		
1.7983E-01	5.9983E-02	1.0146E-01	2.8970E-01	5.3510E-02	3.3921E-03	2.3980E-01	1.4003E-00	8.2206E-02	9.3926E-02		
MJ(BTU/R)	TS(JR)	TSO(JR)	MO(BTU/R)	TTO(JR)	PTO(P5F)	CPJ(BTU/R)	GAMJ	RHOJ(M/FT)	UJ(FT/SEC)		
1.2789E-02	4.6168E-02	6.7720E-02	1.6500E-02	6.8941E-02	2.1825E-03	2.4144E-01	1.3955E-00	5.6762E-02	3.8300E-02		
R(FT)	C	CPJ(BTU/R)	GAM	MW	PS(P5F)	TS(JR)	RHOJ(M/FT)	UJ(FT/SEC)	HISTU(JR)	TT(JR)	PT(P5F)
8.249E-02	1.229E-02	2.414E-01	1.397E-00	2.897E-01	2.049E-03	6.750E-02	5.692E-02	3.887E-02	1.645E-02	6.875E-02	2.188E-03
8.246E-02	1.175E-02	2.414E-01	1.397E-00	2.897E-01	2.050E-03	6.753E-02	5.693E-02	3.881E-02	1.646E-02	6.876E-02	2.188E-03
4.755E-02	1.693E-02	2.414E-01	1.397E-00	2.897E-01	2.050E-03	6.745E-02	5.690E-02	3.858E-02	1.644E-02	6.868E-02	2.188E-03
3.530E-02	1.354E-01	2.411E-01	1.397E-00	2.897E-01	2.047E-03	6.553E-02	5.857E-02	4.000E-02	1.600E-02	6.686E-02	2.196E-03
2.022E-02	5.131E-01	2.404E-01	1.399E-00	2.897E-01	2.041E-03	5.838E-02	6.555E-02	5.574E-02	1.458E-02	6.096E-02	2.375E-03
2.327E-02	1.169E-01	2.401E-01	1.400E-00	2.897E-01	2.032E-03	5.297E-02	7.192E-02	7.692E-02	1.384E-02	5.789E-02	2.773E-03
1.542E-02	9.262E-01	2.399E-01	1.400E-00	2.897E-01	2.024E-03	4.752E-02	7.985E-02	9.263E-02	1.306E-02	5.465E-02	3.302E-03
1.222E-02	9.611E-01	2.399E-01	1.400E-00	2.897E-01	2.022E-03	4.679E-02	8.104E-02	9.379E-02	1.293E-02	5.411E-02	3.363E-03
9.095E-03	3.695E-01	2.398E-01	1.400E-00	2.897E-01	2.022E-03	4.680E-02	8.139E-02	9.421E-02	1.290E-02	5.398E-02	3.384E-03
4.930E-04	9.626E-01	2.398E-01	1.400E-00	2.897E-01	2.024E-03	4.699E-02	8.129E-02	9.432E-02	1.293E-02	5.409E-02	3.377E-03
-2.637E-03	9.611E-01	2.398E-01	1.400E-00	2.897E-01	2.024E-03	4.670E-02	8.126E-02	9.437E-02	1.293E-02	5.411E-02	3.380E-03
-1.168E-02	9.448E-01	2.398E-01	1.400E-00	2.897E-01	2.023E-03	4.681E-02	8.104E-02	9.429E-02	1.296E-02	5.421E-02	3.381E-03
-1.569E-02	8.787E-01	2.398E-01	1.400E-00	2.897E-01	2.025E-03	4.812E-02	7.890E-02	9.253E-02	1.321E-02	5.525E-02	3.253E-03
-2.352E-02	6.840E-01	2.402E-01	1.399E-00	2.897E-01	2.036E-03	5.343E-02	7.093E-02	7.411E-02	1.396E-02	5.840E-02	2.700E-03
-3.051E-02	3.272E-01	2.408E-01	1.398E-00	2.897E-01	2.047E-03	6.202E-02	6.188E-02	4.762E-02	1.529E-02	6.390E-02	2.273E-03
-3.610E-02	4.265E-02	2.413E-01	1.397E-00	2.897E-01	2.049E-03	6.705E-02	5.731E-02	3.845E-02	1.634E-02	6.829E-02	2.185E-03
-4.280E-02	1.511E-02	2.414E-01	1.397E-00	2.897E-01	2.050E-03	6.709E-02	5.729E-02	4.422E-02	1.644E-02	6.871E-02	2.220E-03
-5.112E-02	1.215E-02	2.414E-01	1.397E-00	2.897E-01	2.049E-03	6.752E-02	5.692E-02	3.887E-02	1.646E-02	6.875E-02	2.185E-03
-5.390E-02	2.870E-03	2.414E-01	1.396E-00	2.897E-01	2.049E-03	6.765E-02	5.679E-02	3.843E-02	1.649E-02	6.890E-02	2.185E-03
-7.039E-02	4.050E-03	2.414E-01	1.396E-00	2.897E-01	2.049E-03	6.762E-02	5.680E-02	3.900E-02	1.649E-02	6.888E-02	2.186E-03
-8.173E-02	1.172E-02	2.414E-01	1.397E-00	2.897E-01	2.049E-03	6.749E-02	5.696E-02	3.919E-02	1.646E-02	6.876E-02	2.187E-03
-9.699E-02	1.833E-02	2.414E-01	1.397E-00	2.897E-01	2.047E-03	6.740E-02	5.695E-02	3.906E-02	1.643E-02	6.866E-02	2.189E-03
-1.147E-01	3.042E-02	2.414E-01	1.397E-00	2.897E-01	2.047E-03	6.721E-02	5.711E-02	3.904E-02	1.639E-02	6.874E-02	2.189E-03
-1.292E-01	1.252E-01	2.412E-01	1.397E-00	2.897E-01	2.047E-03	6.590E-02	5.825E-02	3.677E-02	1.604E-02		

X(FT)	RS(FT)	WJ(SEC)	MJ(SEC)	WJ(SEC)	TJ(FT)	PTJ(SEC)	CPJ(SEC)	R1	GAM	RMJ(SEC)	FT	WJ(SEC)
2.3009E-01	2.3009E-02	1.0159E-01	2.3009E-01	5.3512E-01	3.3933E-01	2.3980E-01	1.4003E-01	2.2152E-02	4.6039E-02			
MJ(FT)	TS(FT)	TS(SEC)	MJ(FT)	TS(SEC)	PT(SEC)	CP(SEC)	R1	GAM	RMJ(SEC)	FT	WJ(SEC)	PT(SEC)
1.2790E 02	4.6156E 02	6.7851E 02	1.6532E 02	6.9072E 02	2.1924E 03	2.4146E-01	1.3964E 03	5.6646E-02	3.8430E 02			
R(FT)	C	CPJ(FT)	R1	GAM	MJ	PTJ(SEC)	TS(FT)	RMJ(SEC)	FT	WJ(SEC)	TS(FT)	PT(SEC)
7.957E-02	1.590E-02	2.414E-01	1.397E 00	2.897E 01	2.049E 03	6.775E 02	5.685E-02	3.898E 02	1.647E 02	6.983E 02	2.186E 03	2.186E 03
6.576E-02	1.219E-02	2.414E-01	1.396E 00	2.897E 01	2.050E 03	6.764E 02	5.682E-02	3.877E 02	1.649E 02	6.888E 02	2.185E 03	2.185E 03
5.921E-02	1.292E-02	2.414E-01	1.397E 00	2.897E 01	2.050E 03	6.762E 02	5.653E-02	3.805E 02	1.649E 02	6.887E 02	2.186E 03	2.186E 03
4.795E-02	1.900E-02	2.414E-01	1.397E 00	2.897E 01	2.050E 03	6.759E 02	5.690E-02	3.957E 02	1.646E 02	6.878E 02	2.184E 03	2.184E 03
4.186E-02	3.187E-02	2.414E-01	1.397E 00	2.897E 01	2.048E 03	6.721E 02	5.715E-02	3.909E 02	1.639E 02	6.847E 02	2.187E 03	2.187E 03
3.690E-02	1.764E-01	2.411E-01	1.397E 00	2.897E 01	2.048E 03	6.682E 02	5.918E-02	4.284E 02	1.587E 02	6.634E 02	2.220E 03	2.220E 03
2.935E-02	5.363E-01	2.404E-01	1.396E 00	2.897E 01	2.039E 03	6.780E 02	6.611E-02	5.902E 02	1.453E 02	6.074E 02	2.425E 03	2.425E 03
2.119E-02	7.123E-01	2.401E-01	1.400E 00	2.897E 01	2.029E 03	6.742E 02	7.254E-02	5.905E 02	1.379E 02	5.911E 02	2.373E 03	2.373E 03
1.339E-02	4.707E-01	2.399E-01	1.400E 00	2.897E 01	2.022E 03	6.794E 02	7.077E-02	5.199E 02	1.314E 02	5.476E 02	2.323E 03	2.323E 03
4.303E-03	7.691E-01	2.398E-01	1.400E 00	2.897E 01	2.022E 03	6.660E 02	5.136E-02	4.272E 02	1.291E 02	5.400E 02	3.385E 03	3.385E 03
-1.002E-03	9.432E-01	2.398E-01	1.400E 00	2.897E 01	2.022E 03	6.666E 02	6.126E-02	4.399E 02	1.293E 02	5.408E 02	3.388E 03	3.388E 03
-7.645E-03	9.566E-01	2.398E-01	1.400E 00	2.897E 01	2.021E 03	6.678E 02	6.132E-02	4.436E 02	1.295E 02	5.419E 02	3.381E 03	3.381E 03
-1.324E-02	7.583E-01	2.401E-01	1.400E 00	2.897E 01	2.029E 03	5.143E 02	7.139E-02	4.390E 02	1.369E 02	5.729E 02	2.958E 03	2.958E 03
-2.523E-02	5.700E-01	2.403E-01	1.399E 00	2.897E 01	2.038E 03	5.695E 02	6.698E-02	4.218E 02	1.440E 02	6.022E 02	2.670E 03	2.670E 03
-3.364E-02	1.615E-01	2.411E-01	1.397E 00	2.897E 01	2.045E 03	6.917E 02	5.884E-02	4.114E 02	1.593E 02	6.557E 02	2.204E 03	2.204E 03
-4.106E-02	2.273E-02	2.414E-01	1.397E 00	2.897E 01	2.049E 03	6.749E 02	5.695E-02	3.949E 02	1.649E 02	6.672E 02	2.185E 03	2.185E 03
-5.033E-02	7.042E-03	2.414E-01	1.396E 00	2.897E 01	2.049E 03	6.772E 02	5.674E-02	3.874E 02	1.651E 02	6.896E 02	2.184E 03	2.184E 03
-6.303E-02	5.765E-04	2.414E-01	1.396E 00	2.897E 01	2.049E 03	6.781E 02	5.654E-02	3.916E 02	1.651E 02	6.706E 02	2.185E 03	2.185E 03
-7.987E-02	5.417E-03	2.414E-01	1.396E 00	2.897E 01	2.048E 03	6.775E 02	5.705E-02	3.911E 02	1.651E 02	6.896E 02	2.186E 03	2.186E 03
-9.397E-02	2.004E-02	2.414E-01	1.397E 00	2.897E 01	2.048E 03	6.750E 02	5.699E-02	3.908E 02	1.648E 02	6.878E 02	2.186E 03	2.186E 03
-1.134E-01	4.400E-02	2.414E-01	1.397E 00	2.897E 01	2.048E 03	6.715E 02	5.718E-02	3.875E 02	1.637E 02	6.894E 02	2.186E 03	2.186E 03
X(FT)	RS(FT)	WJ(SEC)	MJ(SEC)	WJ(SEC)	TJ(FT)	PTJ(SEC)	CPJ(SEC)	R1	GAM	RMJ(SEC)	FT	WJ(SEC)
2.5809E-01	2.5809E-02	1.0159E-01	2.5809E-01	5.3512E-01	3.3933E-01	2.3981E-01	1.4003E-01	2.2114E-02	4.6062E-02			
MJ(FT)	TS(FT)	TS(SEC)	MJ(FT)	TS(SEC)	PT(SEC)	CP(SEC)	R1	GAM	RMJ(SEC)	FT	WJ(SEC)	PT(SEC)
1.2791E 02	4.6157E 02	6.7953E 02	1.6562E 02	6.9198E 02	2.1645E 03	2.4146E-01	1.3964E 03	5.6543E-02	3.8912E 02			
R(FT)	C	CPJ(FT)	R1	GAM	MJ	PTJ(SEC)	TS(FT)	RMJ(SEC)	FT	WJ(SEC)	TS(FT)	PT(SEC)
7.795E-02	9.095E-02	2.415E-01	1.395E 00	2.897E 01	2.049E 03	6.779E 02	5.657E-02	3.918E 02	1.653E 02	6.705E 02	2.187E 03	2.187E 03
6.342E-02	1.081E-02	2.415E-01	1.396E 00	2.897E 01	2.049E 03	6.775E 02	5.672E-02	3.942E 02	1.652E 02	6.903E 02	2.189E 03	2.189E 03
5.205E-02	1.439E-02	2.414E-01	1.396E 00	2.897E 01	2.049E 03	6.771E 02	5.676E-02	3.916E 02	1.651E 02	6.897E 02	2.188E 03	2.188E 03
4.363E-02	2.980E-02	2.414E-01	1.397E 00	2.897E 01	2.049E 03	6.765E 02	5.694E-02	3.925E 02	1.649E 02	6.873E 02	2.188E 03	2.188E 03
3.500E-02	2.355E-01	2.409E-01	1.395E 00	2.897E 01	2.046E 03	6.855E 02	6.032E-02	4.500E 02	1.651E 02	6.523E 02	2.240E 03	2.240E 03
2.787E-02	5.592E-01	2.404E-01	1.396E 00	2.897E 01	2.037E 03	6.775E 02	6.655E-02	4.121E 02	1.648E 02	6.555E 02	2.451E 03	2.451E 03
1.984E-02	7.325E-01	2.401E-01	1.400E 00	2.897E 01	2.027E 03	6.731E 02	7.284E-02	5.913E 02	1.380E 02	5.775E 02	2.368E 03	2.368E 03
1.228E-02	5.853E-01	2.399E-01	1.400E 00	2.897E 01	2.022E 03	6.829E 02	7.850E-02	5.153E 02	1.321E 02	5.528E 02	2.344E 03	2.344E 03
5.875E-03	5.595E-01	2.398E-01	1.400E 00	2.897E 01	2.021E 03	6.683E 02	6.088E-02	4.391E 02	1.295E 02	5.420E 02	3.363E 03	3.363E 03
2.718E-03	5.858E-01	2.398E-01	1.400E 00	2.897E 01	2.022E 03	6.477E 02	6.134E-02	4.272E 02	1.295E 02	5.417E 02	3.379E 03	3.379E 03
-4.329E-04	5.878E-01	2.398E-01	1.400E 00	2.897E 01	2.022E 03	6.475E 02	6.139E-02	4.441E 02	1.295E 02	5.417E 02	3.385E 03	3.385E 03
-3.374E-03	5.988E-01	2.398E-01	1.400E 00	2.897E 01	2.022E 03	6.475E 02	6.149E-02	4.443E 02	1.295E 02	5.417E 02	3.395E 03	3.395E 03
-6.455E-03	5.954E-01	2.398E-01	1.400E 00	2.897E 01	2.021E 03	6.491E 02	6.098E-02	4.439E 02	1.294E 02	5.422E 02	3.381E 03	3.381E 03
-1.416E-02	5.682E-01	2.399E-01	1.400E 00	2.897E 01	2.022E 03	6.486E 02	7.798E-02	4.162E 02	1.329E 02	5.559E 02	2.324E 03	2.324E 03
-2.066E-02	7.120E-01	2.401E-01	1.400E 00	2.897E 01	2.025E 03	5.283E 02	7.144E-02	7.985E 02	1.389E 02	5.805E 02	2.608E 03	2.608E 03
-2.785E-02	5.243E-01	2.404E-01	1.399E 00	2.897E 01	2.034E 03	5.809E 02	6.753E-02	4.121E 02	1.459E 02	6.094E 02	2.416E 03	2.416E 03
-3.372E-02	2.663E-01	2.405E-01	1.398E 00	2.897E 01	2.042E 03	6.833E 02	6.033E-02	4.505E 02	1.656E 02	6.503E 02	2.242E 03	2.242E 03
-4.080E-02	3.745E-02	2.414E-01	1.396E 00	2.897E 01	2.049E 03	6.812E 02	5.703E-02	3.918E 02	1.650E 02	6.775E 02	2.191E 03	2.191E 03
-4.845E-02	1.404E-02	2.414E-01	1.396E 00	2.897E 01	2.049E 03	6.767E 02	5.787E-02	3.957E 02	1.650E 02	6.895E 02	2.190E 03	2.190E 03
-5.318E-02	1.325E-02	2.415E-01	1.396E 00	2.897E 01	2.049E 03	6.771E 02	5.674E-02	3.934E 02	1.651E 02	6.899E 02	2.155E 03	2.155E 03
-6.442E-02	5.903E-03	2.415E-01	1.396E 00	2.897E 01	2.049E 03	6.783E 02	5.662E-02	3.933E 02	1.651E 02	6.911E 02	2.187E 03	2.187E 03
-7.560E-02	1.109E-02	2.415E-01	1.396E 00	2.897E 01	2.047E 03	6.774E 02	5.666E-02	3.940E 02	1.652E 02	6.903E 02	2.187E 03	2.187E 03
-8.687E-02	1.223E-02	2.415E-01	1.396E 00	2.897E 01	2.047E 03	6.774E 02	5.666E-02	3.920E 02	1.652E 02	6.901E 02	2.185E 03	2.185E 03
-1.008E-01	2.070E-02	2.414E-01	1.397E 00	2.897E 01	2.047E 03	6.762E 02	5.676E-02	3.894E 02	1.648E 02	6.888E 02	2.184E 03	2.184E 03
-1.171E-01	6.301E-02	2.413E-01	1.397E 00	2.897E 01	2.047E 03	6.702E 02	5.727E-02	3.798E 02	1.632E 02	6.821E 02	2.178E 03	2.178E 03
X(FT)	RS(FT)	WJ(SEC)	MJ(SEC)	WJ(SEC)	TJ(FT)	PTJ(SEC)	CPJ(SEC)	R1	GAM	RMJ(SEC)	FT	WJ(SEC)
2.8267E-01	2.8267E-02	1.0169E-01	2.8267E-01	5.3522E-01	3.3955E-01	2.3981E-01	1.4003E-01	2.2125E-02	4.6159E-02			
MJ(FT)	TS(FT)	TS(SEC)	MJ(FT)	TS(SEC)	PT(SEC)	CP(SEC)	R1	GAM	RMJ(SEC)	FT	WJ(SEC)	PT(SEC)
1.2791E 02	4.6143E 02	6.7979E 02	1.6565E 02	6.9220E 02	2.1839E 03	2.4148E-01	1.3964E 03	5.6515E-02	3.8752E 02			
R(FT)	C	CPJ(FT)	R1	GAM	MJ	PTJ(SEC)	TS(FT)	RMJ(SEC)	FT	WJ(SEC)	TS(FT)	PT(SEC)
9.405E-02	9.465E-03	2.415E-01	1.396E 00	2.897E 01	2.047E 03	6.780E 02	5.661E-02	3.941E 02	1.654E 02	6.909E 02	2.187E 03	2.187E 03
7.869E-02	1.000E-05	2.415E-01	1.396E 00	2.897E 01	2.048E 03	6.800E 02	5.649E-02	3.925E 02	1.655E 02	6.927E 02	2.187E 03	2.187E 03
6.472E-02	1.000E-05	2.415E-01	1.396E 00	2.897E 01	2.049E 03	6.801E 02	5.650E-02	3.910E 02	1.659E 02	6.927E 02	2.187E 03	2.187E 03
5.531E-02	5.366E-04	2.415E-01	1.396E 00	2.897E 01	2.049E 03	6.794E 02	5.655E-02	3.915E 02	1.657E 02	6.921E 02	2.187E 03	2.187E 03
4.583E-02	9.401E-03	2.415E-01	1.396E 00	2.897E 01	2.048E 03	6.781E 02	5.666E-02	3.926E 02	1.653E 02	6.908E 02	2.187E 03	2.187E 03
4.323E-02	5.949E-02	2.413E-01	1.397E 00	2.897E 01	2.047E 03	6.591E 02	5.823E-02	4.481E 02	1.621E 02	6.772E 02	2.252E 03	2.252E 03
3.136E-02	4.133E-01	2.406E-01	1.398E 00	2.897E 01	2.040E 03	6.017E 02	6.356E-02	5.487E 02	1.499E 02	6.267E 02	2.353E 03	2.353E 03
2.201E-02	6.748E-01	2.402E-01	1.399E 00	2.897E 01	2.029E 03	5.385E 02	7.066E-02	7.599E 02	1.402E 02	5.964E 02	2.735E 03	2.735E 03
1.672E-02	7.776E-01	2.400E-01	1.400E 00	2.897E 01	2.025E 03	5.089E 02	7.463E-02	6.594E 02	1.363E 02	5.702E 02	3.018E 03	3.018E 03
1.273E-02	8.549E-01	2.400E-01	1.400E 00	2.897E 01	2.022E 03	4.900E 02	7.737E-02	6.043E 02	1.334E 02	5.581E 02	3.187E 03	3.187E 03
6.295E-03	9.233E-01	2.399										

RIFT	ASIF71	MJ187U/SEC1	MJ187U/SEC1	TTJ181	PTJ185F1	CPJ187U/SEC1	GAMJ	RHJ187U/SEC1	UJ187U/SEC1
3.0250E-01	7.2556E-02	1.0164E-01	2.8970E-01	5.3523E-02	3.3967E-03	2.1951E-01	1.4003E-00	8.2114E-02	9.4203E-02
MJ187U/SEC1	75J181	750181	MJ187U/SEC1	TTJ181	PTJ185F1	CPJ187U/SEC1	GAMJ	RHJ187U/SEC1	UJ187U/SEC1
1.2792E-02	4.5137E-02	6.8257E-02	1.0847E-02	6.9541E-02	2.1896E-03	2.4153E-01	1.3961E-00	5.5291E-02	3.9530E-02
RIFT	C	CPJ187U/SEC1	GAMJ	MJ	PTJ185F1	TSJ181	RHJ187U/SEC1	UJ187U/SEC1	PTJ185F1
8.993E-02	3.305E-02	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.770E-02	5.670E-02	3.995E-02	1.652E-02
7.233E-02	1.165E-02	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.405E-02	5.645E-02	3.943E-02	1.660E-02
5.906E-02	1.052E-02	2.415E-01	1.396E-00	2.897E-01	2.049E-03	6.405E-02	5.645E-02	3.949E-02	1.661E-02
5.150E-02	1.838E-02	2.415E-01	1.396E-00	2.897E-01	2.049E-03	6.795E-02	5.655E-02	3.971E-02	1.658E-02
4.205E-02	1.453E-02	2.415E-01	1.397E-00	2.897E-01	2.047E-03	6.693E-02	5.744E-02	4.048E-02	1.632E-02
3.433E-02	3.419E-01	2.415E-01	1.399E-00	2.897E-01	2.042E-03	6.199E-02	5.023E-02	1.533E-02	1.533E-02
2.534E-02	5.745E-01	2.403E-01	1.399E-00	2.897E-01	2.043E-03	5.697E-02	6.730E-02	6.658E-02	1.443E-02
2.037E-02	5.958E-01	2.402E-01	1.398E-00	2.897E-01	2.043E-03	5.323E-02	7.143E-02	7.890E-02	1.396E-02
1.201E-02	3.362E-01	2.400E-01	1.400E-00	2.897E-01	2.022E-03	4.940E-02	7.675E-02	9.007E-02	1.342E-02
5.544E-03	9.330E-01	2.399E-01	1.400E-00	2.897E-01	2.021E-03	4.734E-02	8.005E-02	9.373E-02	1.305E-02
2.249E-03	9.358E-01	2.395E-01	1.400E-00	2.897E-01	2.021E-03	4.716E-02	8.034E-02	9.417E-02	1.304E-02
-9.453E-04	9.429E-01	2.399E-01	1.400E-00	2.897E-01	2.020E-03	4.703E-02	8.055E-02	9.435E-02	1.301E-02
-9.792E-03	5.401E-01	2.399E-01	1.400E-00	2.897E-01	2.020E-03	4.709E-02	8.045E-02	9.430E-02	1.302E-02
-6.971E-03	9.255E-01	2.399E-01	1.400E-00	2.897E-01	2.020E-03	4.737E-02	7.997E-02	9.401E-02	1.305E-02
-1.007E-02	3.924E-01	2.399E-01	1.400E-00	2.897E-01	2.020E-03	4.810E-02	7.922E-02	9.299E-02	1.321E-02
-1.779E-02	7.033E-01	2.401E-01	1.400E-00	2.897E-01	2.020E-03	5.117E-02	7.319E-02	8.371E-02	1.379E-02
-2.817E-02	5.151E-01	2.394E-01	1.399E-00	2.897E-01	2.017E-03	5.147E-02	6.542E-02	7.934E-02	1.466E-02
-1.975E-02	1.838E-01	2.411E-01	1.397E-00	2.897E-01	2.046E-03	6.447E-02	5.901E-02	4.832E-02	1.592E-02
-4.458E-02	2.891E-02	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.770E-02	5.670E-02	3.949E-02	1.661E-02
-5.451E-02	5.122E-03	2.415E-01	1.396E-00	2.897E-01	2.049E-03	6.415E-02	5.636E-02	3.949E-02	1.661E-02
-6.313E-02	5.128E-03	2.415E-01	1.396E-00	2.897E-01	2.049E-03	6.614E-02	5.636E-02	4.000E-02	1.651E-02
-7.520E-02	4.410E-03	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.205E-02	5.637E-02	4.047E-02	1.653E-02
-9.535E-02	2.251E-02	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.733E-02	5.654E-02	4.019E-02	1.657E-02
-9.564E-02	2.259E-02	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.733E-02	5.654E-02	4.047E-02	1.657E-02
-1.001E-01	4.993E-02	2.414E-01	1.397E-00	2.897E-01	2.047E-03	6.746E-02	5.689E-02	3.954E-02	1.645E-02
-1.236E-01	1.761E-01	2.411E-01	1.397E-00	2.897E-01	2.047E-03	6.561E-02	5.850E-02	3.680E-02	1.597E-02
XIFT1	ASIF71	MJ187U/SEC1	MJ187U/SEC1	TTJ181	PTJ185F1	CPJ187U/SEC1	GAMJ	RHJ187U/SEC1	UJ187U/SEC1
3.0250E-01	7.2556E-02	1.0174E-01	2.8970E-01	5.3525E-02	3.3962E-03	2.1991E-01	1.4003E-00	9.2102E-02	9.4268E-02
MJ187U/SEC1	75J181	750181	MJ187U/SEC1	TTJ181	PTJ185F1	CPJ187U/SEC1	GAMJ	RHJ187U/SEC1	UJ187U/SEC1
1.2792E-02	4.5130E-02	6.7775E-02	1.0820E-02	6.9029E-02	2.1843E-03	2.4146E-01	1.3965E-00	5.6872E-02	3.9472E-02
RIFT	C	CPJ187U/SEC1	GAMJ	MJ	PTJ185F1	TSJ181	RHJ187U/SEC1	UJ187U/SEC1	PTJ185F1
9.022E-02	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.793E-02	5.649E-02	3.925E-02	1.656E-02
7.811E-02	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.046E-03	6.811E-02	5.638E-02	3.919E-02	1.661E-02
6.369E-02	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.049E-03	6.819E-02	5.635E-02	3.921E-02	1.663E-02
5.627E-02	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.049E-03	6.611E-02	5.641E-02	3.914E-02	1.661E-02
4.394E-02	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.045E-03	6.796E-02	5.652E-02	3.930E-02	1.657E-02
4.466E-02	2.890E-02	2.414E-01	1.397E-00	2.897E-01	2.047E-03	5.725E-02	5.707E-02	3.948E-02	1.641E-02
3.958E-02	1.921E-01	2.410E-01	1.397E-00	2.897E-01	2.044E-03	6.627E-02	5.968E-02	4.835E-02	1.580E-02
3.266E-02	3.939E-01	2.406E-01	1.398E-00	2.897E-01	2.040E-03	6.642E-02	6.327E-02	4.505E-02	1.505E-02
2.523E-02	5.872E-01	2.403E-01	1.397E-00	2.897E-01	2.032E-03	6.199E-02	6.810E-02	4.923E-02	1.433E-02
1.865E-02	7.065E-01	2.401E-01	1.400E-00	2.897E-01	2.026E-03	5.744E-02	7.218E-02	6.102E-02	1.399E-02
1.194E-02	8.233E-01	2.400E-01	1.400E-00	2.897E-01	2.022E-03	6.091E-02	7.641E-02	6.951E-02	1.345E-02
7.864E-03	8.745E-01	2.399E-01	1.400E-00	2.897E-01	2.021E-03	6.438E-02	7.831E-02	9.214E-02	1.325E-02
2.633E-03	9.181E-01	2.399E-01	1.400E-00	2.897E-01	2.020E-03	6.746E-02	7.951E-02	9.101E-02	1.310E-02
-7.431E-04	9.241E-01	2.399E-01	1.400E-00	2.897E-01	2.020E-03	6.731E-02	8.305E-02	9.406E-02	1.307E-02
-3.723E-03	9.194E-01	2.399E-01	1.400E-00	2.897E-01	2.019E-03	6.725E-02	7.955E-02	9.400E-02	1.309E-02
-6.505E-03	9.024E-01	2.399E-01	1.400E-00	2.897E-01	2.019E-03	6.777E-02	7.924E-02	9.347E-02	1.315E-02
-1.647E-02	7.755E-01	2.400E-01	1.400E-00	2.897E-01	2.022E-03	5.955E-02	7.479E-02	8.719E-02	1.363E-02
-2.050E-02	5.654E-01	2.402E-01	1.399E-00	2.897E-01	2.047E-03	6.390E-02	7.052E-02	7.609E-02	1.404E-02
-2.757E-02	5.071E-01	2.404E-01	1.399E-00	2.897E-01	2.037E-03	6.417E-02	5.661E-02	6.018E-02	1.438E-02
-1.950E-02	2.401E-01	2.409E-01	1.399E-00	2.897E-01	2.044E-03	6.356E-02	6.300E-02	4.952E-02	1.562E-02
-4.237E-02	2.245E-02	2.413E-01	1.397E-00	2.897E-01	2.047E-03	6.648E-02	5.744E-02	4.096E-02	1.332E-02
-5.127E-02	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.048E-03	6.805E-02	5.644E-02	3.924E-02	1.659E-02
-6.345E-02	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.048E-03	6.822E-02	5.625E-02	3.954E-02	1.664E-02
-7.396E-02	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.811E-02	5.635E-02	3.902E-02	1.661E-02
-8.480E-02	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.807E-02	5.639E-02	3.976E-02	1.661E-02
-1.008E-01	1.000E-05	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.778E-02	5.663E-02	3.946E-02	1.653E-02
-1.163E-01	7.469E-02	2.413E-01	1.397E-00	2.897E-01	2.047E-03	6.665E-02	5.759E-02	3.842E-02	1.624E-02
XIFT1	ASIF71	MJ187U/SEC1	MJ187U/SEC1	TTJ181	PTJ185F1	CPJ187U/SEC1	GAMJ	RHJ187U/SEC1	UJ187U/SEC1
3.5098E-01	7.8098E-02	1.0173E-01	2.8970E-01	5.3524E-02	3.3960E-03	2.3981E-01	1.4003E-00	8.2094E-02	9.4275E-02
MJ187U/SEC1	75J181	750181	MJ187U/SEC1	TTJ181	PTJ185F1	CPJ187U/SEC1	GAMJ	RHJ187U/SEC1	UJ187U/SEC1
1.2792E-02	4.6127E-02	6.8439E-02	1.0816E-02	6.9715E-02	2.1860E-03	2.4156E-01	1.3962E-00	5.6116E-02	3.9302E-02
RIFT	C	CPJ187U/SEC1	GAMJ	MJ	PTJ185F1	TSJ181	RHJ187U/SEC1	UJ187U/SEC1	PTJ185F1
8.173E-02	2.551E-02	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.797E-02	5.647E-02	4.014E-02	1.659E-02
7.167E-02	1.285E-02	2.415E-01	1.396E-00	2.897E-01	2.049E-03	6.819E-02	5.634E-02	4.006E-02	1.664E-02
6.164E-02	1.285E-02	2.415E-01	1.396E-00	2.897E-01	2.049E-03	6.819E-02	5.634E-02	4.006E-02	1.664E-02
5.515E-02	1.597E-02	2.415E-01	1.396E-00	2.897E-01	2.049E-03	6.819E-02	5.638E-02	3.966E-02	1.663E-02
4.247E-02	1.555E-02	2.415E-01	1.396E-00	2.897E-01	2.047E-03	6.770E-02	5.670E-02	4.027E-02	1.653E-02
4.191E-02	1.634E-01	2.412E-01	1.397E-00	2.897E-01	2.042E-03	6.574E-02	5.829E-02	4.407E-02	1.613E-02
3.619E-02	3.272E-01	2.408E-01	1.398E-00	2.897E-01	2.042E-03	6.226E-02	6.147E-02	5.098E-02	1.541E-02
3.013E-02	6.948E-01	2.405E-01	1.399E-00	2.897E-01	2.039E-03	5.850E-02	6.517E-02	4.136E-02	1.476E-02
2.594E-02	5.905E-01	2.403E-01	1.399E-00	2.897E-01	2.032E-03	5.649E-02	6.747E-02	4.801E-02	1.443E-02
1.911E-02	6.917E-01	2.402E-01	1.399E-00	2.897E-01	2.026E-03	5.325E-02	7.135E-02	7.871E-02	1.399E-02
1.203E-02	8.053E-01	2.400E-01	1.400E-00	2.897E-01	2.022E-03	5.012E-02	7.564E-02	8.843E-02	1.353E-02
8.453E-03	9.472E-01	2.400E-01	1.400E-00	2.897E-01	2.021E-03	4.904E-02	7.720E-02	9.125E-02	1.339E-02
5.712E-03	9.752E-01	2.399E-01	1.400E-00	2.897E-01	2.020E-03	4.840E-02	7.826E-02	9.270E-02	1.328E-02
2.039E-03	9.705E-01	2.399E-01	1.400E-00	2.897E-01	2.020E-03	4.795E-02	7.896E-02	9.327E-02	1.319E-02
-5.364E-04	9.054E-01	2.399E-01	1.400E-00	2.897E-01	2.019E-03	4.779E-02	7.928E-02	9.367E-02	1.316E-02
-3.559E-03	9.007E-01	2.399E-01	1.400E-00	2.897E-01	2.019E-03	4.787E-02	7.909E-02	9.347E-02	1.314E-02
-6.557E-03	9.735E-01	2.395E-01	1.400E-00	2.897E-01	2.017E-03	4.645E-02	7.817E-02	9.242E-02	1.329E-02
-9.724E-03	9.370E-01	2.400E-01	1.400E-00	2.897E-01	2.020E-03	4.945E-02	7.72		

RIPT	C	CP(OTU/B #1)	GAM	MW	PS(PSF)	TS(1)	BH(OTU/PT 3)	UI(FT/SEC)	H(OTU/PT 3)	TT(1)	PT(PSF)
0.900E-02	4.332E-02	2.615E-01	1.396E-00	2.897E-01	2.046E-03	6.773E-02	5.665E-02	3.902E-02	1.653E-02	6.904E-02	2.189E-03
7.553E-02	1.707E-02	2.615E-01	1.396E-00	2.897E-01	2.046E-03	6.822E-02	5.628E-02	4.017E-02	1.685E-02	6.935E-02	2.192E-03
6.594E-02	1.800E-02	2.615E-01	1.396E-00	2.897E-01	2.046E-03	6.824E-02	5.628E-02	4.016E-02	1.685E-02	6.935E-02	2.192E-03
5.537E-02	1.459E-02	2.615E-01	1.396E-00	2.897E-01	2.046E-03	6.826E-02	5.628E-02	4.012E-02	1.685E-02	6.935E-02	2.192E-03
5.242E-02	1.375E-02	2.615E-01	1.396E-00	2.897E-01	2.046E-03	6.791E-02	5.654E-02	4.020E-02	1.657E-02	6.925E-02	2.194E-03
4.730E-02	1.344E-02	2.614E-01	1.397E-00	2.897E-01	2.047E-03	6.724E-02	5.708E-02	4.111E-02	1.643E-02	6.864E-02	2.201E-03
3.992E-02	1.560E-01	2.611E-01	1.397E-00	2.897E-01	2.043E-03	6.517E-02	5.900E-02	4.451E-02	1.590E-02	6.831E-02	2.230E-03
3.646E-02	1.160E-01	2.609E-01	1.398E-00	2.897E-01	2.041E-03	6.263E-02	6.112E-02	4.939E-02	1.548E-02	6.690E-02	2.287E-03
3.069E-02	4.537E-01	2.606E-01	1.398E-00	2.897E-01	2.037E-03	5.950E-02	6.420E-02	5.960E-02	1.493E-02	6.244E-02	2.414E-03
2.537E-02	5.643E-01	2.604E-01	1.399E-00	2.897E-01	2.032E-03	5.671E-02	6.720E-02	6.879E-02	1.450E-02	6.064E-02	2.571E-03
1.981E-02	6.755E-01	2.602E-01	1.399E-00	2.897E-01	2.027E-03	5.371E-02	7.075E-02	7.843E-02	1.406E-02	5.833E-02	2.787E-03
1.165E-02	7.691E-01	2.601E-01	1.400E-00	2.897E-01	2.023E-03	5.100E-02	7.436E-02	8.701E-02	1.370E-02	5.730E-02	3.040E-03
5.357E-03	8.614E-01	2.600E-01	1.400E-00	2.897E-01	2.021E-03	4.825E-02	7.892E-02	9.955E-02	1.341E-02	5.612E-02	3.190E-03
2.929E-03	9.580E-01	2.600E-01	1.400E-00	2.897E-01	2.020E-03	4.680E-02	7.762E-02	9.205E-02	1.335E-02	5.585E-02	3.240E-03
4.265E-05	9.677E-01	2.399E-01	1.400E-00	2.897E-01	2.020E-03	4.659E-02	7.796E-02	9.243E-02	1.331E-02	5.569E-02	3.257E-03
-2.945E-03	8.641E-01	2.600E-01	1.400E-00	2.897E-01	2.019E-03	4.651E-02	7.789E-02	9.250E-02	1.332E-02	5.575E-02	3.261E-03
-5.903E-03	8.432E-01	2.600E-01	1.400E-00	2.897E-01	2.019E-03	4.600E-02	7.789E-02	9.111E-02	1.339E-02	5.601E-02	3.225E-03
-1.284E-02	7.609E-01	2.601E-01	1.400E-00	2.897E-01	2.016E-03	4.666E-02	7.575E-02	9.221E-02	1.330E-02	5.611E-02	3.210E-03
-1.833E-02	6.180E-01	2.602E-01	1.399E-00	2.897E-01	2.026E-03	5.387E-02	7.077E-02	7.642E-02	1.405E-02	5.870E-02	2.786E-03
-2.542E-02	5.551E-01	2.604E-01	1.399E-00	2.897E-01	2.033E-03	5.705E-02	6.693E-02	6.567E-02	1.450E-02	6.063E-02	2.517E-03
-3.272E-02	4.003E-01	2.607E-01	1.398E-00	2.897E-01	2.040E-03	6.091E-02	6.240E-02	5.347E-02	1.514E-02	6.331E-02	2.337E-03
-4.078E-02	1.660E-01	2.612E-01	1.397E-00	2.897E-01	2.045E-03	6.513E-02	5.847E-02	4.880E-02	1.606E-02	6.710E-02	2.271E-03
-5.943E-02	3.064E-02	2.615E-01	1.396E-00	2.897E-01	2.047E-03	6.790E-02	5.847E-02	4.039E-02	1.659E-02	6.933E-02	2.194E-03
-5.843E-02	9.604E-03	2.616E-01	1.396E-00	2.897E-01	2.047E-03	6.835E-02	5.617E-02	4.025E-02	1.688E-02	6.968E-02	2.191E-03
-6.707E-02	1.051E-02	2.615E-01	1.396E-00	2.897E-01	2.047E-03	6.834E-02	5.616E-02	3.990E-02	1.687E-02	6.966E-02	2.190E-03
-7.655E-02	1.078E-02	2.615E-01	1.396E-00	2.897E-01	2.046E-03	6.835E-02	5.614E-02	3.972E-02	1.687E-02	6.965E-02	2.187E-03
-8.565E-02	1.938E-02	2.615E-01	1.396E-00	2.897E-01	2.046E-03	6.825E-02	5.622E-02	3.949E-02	1.684E-02	6.954E-02	2.186E-03
-1.307E-01	5.473E-02	2.614E-01	1.397E-00	2.897E-01	2.046E-03	6.710E-02	5.670E-02	3.825E-02	1.650E-02	6.845E-02	2.184E-03
-1.173E-01	1.705E-02	2.612E-01	1.397E-00	2.897E-01	2.046E-03	6.627E-02	5.790E-02	3.633E-02	1.612E-02	6.718E-02	2.170E-03
RIPT	C	CP(OTU/B #1)	GAM	MW	PS(PSF)	TS(1)	BH(OTU/PT 3)	UI(FT/SEC)	H(OTU/PT 3)	TT(1)	PT(PSF)
4.136E-01	8.613E-02	1.017E-01	2.897E-01	5.352E-02	3.392E-02	2.398E-01	1.400E-00	9.219E-02	9.420E-02		
MJ(OTU/PT 3)	TS(1)	TS(1)	MJ(OTU/PT 3)	TS(1)	PT(PSF)	CP(OTU/B #1)	GAM	RH(OTU/PT 3)	UI(FT/SEC)	<td></td>	
1.279E-02	4.612E-02	6.852E-02	1.672E-02	6.906E-02	2.190E-03	2.615E-01	1.396E-00	5.599E-02	4.024E-02		
RIPT	C	CP(OTU/B #1)	GAM	MW	PS(PSF)	TS(1)	BH(OTU/PT 3)	UI(FT/SEC)	H(OTU/PT 3)	TT(1)	PT(PSF)
8.424E-02	5.453E-02	2.614E-01	1.396E-00	2.897E-01	2.046E-03	6.701E-02	5.874E-02	4.053E-02	1.651E-02	6.897E-02	2.195E-03
7.435E-02	1.752E-02	2.615E-01	1.396E-00	2.897E-01	2.047E-03	6.823E-02	5.626E-02	4.029E-02	1.685E-02	6.957E-02	2.193E-03
6.341E-02	1.553E-02	2.615E-01	1.396E-00	2.897E-01	2.048E-03	6.826E-02	5.626E-02	4.036E-02	1.684E-02	6.961E-02	2.194E-03
5.444E-02	2.919E-02	2.615E-01	1.396E-00	2.897E-01	2.044E-03	6.804E-02	5.643E-02	4.032E-02	1.651E-02	6.938E-02	2.194E-03
4.715E-02	1.075E-01	2.613E-01	1.397E-00	2.897E-01	2.046E-03	6.666E-02	5.675E-02	4.221E-02	1.630E-02	6.811E-02	2.210E-03
3.940E-02	2.553E-01	2.610E-01	1.398E-00	2.897E-01	2.042E-03	6.369E-02	6.013E-02	4.929E-02	1.572E-02	6.570E-02	2.278E-03
3.150E-02	4.411E-01	2.606E-01	1.398E-00	2.897E-01	2.037E-03	5.973E-02	6.394E-02	5.948E-02	1.499E-02	6.267E-02	2.410E-03
2.345E-02	5.804E-01	2.603E-01	1.399E-00	2.897E-01	2.030E-03	5.619E-02	6.776E-02	7.112E-02	1.444E-02	6.039E-02	2.614E-03
1.748E-02	6.717E-01	2.602E-01	1.399E-00	2.897E-01	2.026E-03	5.370E-02	7.075E-02	7.910E-02	1.405E-02	5.890E-02	2.801E-03
1.007E-02	7.633E-01	2.601E-01	1.400E-00	2.897E-01	2.022E-03	5.107E-02	7.425E-02	8.723E-02	1.372E-02	5.740E-02	3.044E-03
5.366E-03	8.090E-01	2.600E-01	1.400E-00	2.897E-01	2.021E-03	4.990E-02	7.582E-02	8.959E-02	1.354E-02	5.685E-02	3.135E-03
2.074E-03	9.236E-01	2.600E-01	1.400E-00	2.897E-01	2.020E-03	4.961E-02	7.635E-02	9.042E-02	1.345E-02	5.641E-02	3.167E-03
-1.105E-03	9.287E-01	2.600E-01	1.400E-00	2.897E-01	2.020E-03	4.950E-02	7.652E-02	9.054E-02	1.346E-02	5.633E-02	3.176E-03
-4.019E-03	8.197E-01	2.600E-01	1.400E-00	2.897E-01	2.020E-03	4.967E-02	7.624E-02	9.045E-02	1.350E-02	5.644E-02	3.166E-03
-7.016E-03	7.937E-01	2.601E-01	1.400E-00	2.897E-01	2.020E-03	5.024E-02	7.539E-02	9.196E-02	1.358E-02	5.602E-02	3.198E-03
-1.373E-02	7.164E-01	2.601E-01	1.399E-00	2.897E-01	2.021E-03	5.254E-02	7.220E-02	8.254E-02	1.391E-02	5.820E-02	2.890E-03
-2.179E-02	6.015E-01	2.603E-01	1.399E-00	2.897E-01	2.030E-03	5.545E-02	6.814E-02	7.104E-02	1.436E-02	6.004E-02	2.616E-03
-2.927E-02	4.711E-01	2.605E-01	1.399E-00	2.897E-01	2.037E-03	5.929E-02	6.442E-02	5.509E-02	1.467E-02	6.218E-02	2.408E-03
-3.675E-02	3.022E-01	2.609E-01	1.399E-00	2.897E-01	2.042E-03	6.283E-02	6.093E-02	4.905E-02	1.551E-02	6.492E-02	2.279E-03
-4.375E-02	1.294E-01	2.613E-01	1.397E-00	2.897E-01	2.046E-03	6.625E-02	5.790E-02	4.263E-02	1.621E-02	6.775E-02	2.214E-03
-4.963E-02	4.041E-02	2.615E-01	1.396E-00	2.897E-01	2.047E-03	6.771E-02	5.669E-02	4.051E-02	1.653E-02	6.907E-02	2.196E-03
-5.836E-02	1.586E-02	2.615E-01	1.396E-00	2.897E-01	2.047E-03	6.827E-02	5.623E-02	4.020E-02	1.666E-02	6.960E-02	2.192E-03
-7.030E-02	1.558E-02	2.615E-01	1.396E-00	2.897E-01	2.047E-03	6.926E-02	5.622E-02	4.038E-02	1.666E-02	6.961E-02	2.193E-03
-8.284E-02	2.291E-02	2.615E-01	1.396E-00	2.897E-01	2.047E-03	6.814E-02	5.632E-02	4.037E-02	1.653E-02	6.944E-02	2.193E-03
-7.01E-02	6.095E-02	2.614E-01	1.397E-00	2.897E-01	2.047E-03	6.754E-02	5.680E-02	3.976E-02	1.644E-02	6.887E-02	2.190E-03
-1.120E-01	1.490E-01	2.612E-01	1.397E-00	2.897E-01	2.047E-03	6.627E-02	5.790E-02	3.794E-02	1.616E-02	6.746E-02	2.178E-03
RIPT	C	CP(OTU/B #1)	GAM	MW	PS(PSF)	TS(1)	BH(OTU/PT 3)	UI(FT/SEC)	H(OTU/PT 3)	TT(1)	PT(PSF)
4.922E-01	9.022E-02	1.018E-01	2.897E-01	5.351E-02	3.400E-02	2.390E-01	1.400E-00	9.214E-02	9.420E-02		
MJ(OTU/PT 3)	TS(1)	TS(1)	MJ(OTU/PT 3)	TS(1)	PT(PSF)	CP(OTU/B #1)	GAM	RH(OTU/PT 3)	UI(FT/SEC)	<td></td>	
1.279E-02	4.611E-02	6.852E-02	1.672E-02	6.906E-02	2.191E-03	2.615E-01	1.396E-00	5.600E-02	4.0276E-02		
RIPT	C	CP(OTU/B #1)	GAM	MW	PS(PSF)	TS(1)	BH(OTU/PT 3)	UI(FT/SEC)	H(OTU/PT 3)	TT(1)	PT(PSF)
7.740E-02	4.410E-02	2.615E-01	1.396E-00	2.897E-01	2.046E-03	6.780E-02	5.680E-02	4.030E-02	1.655E-02	6.914E-02	2.195E-03
6.865E-02	2.031E-02	2.615E-01	1.396E-00	2.897E-01	2.047E-03	6.819E-02	5.680E-02	4.032E-02	1.684E-02	6.953E-02	2.193E-03
6.162E-02	2.181E-02	2.615E-01	1.396E-00	2.897E-01	2.048E-03	6.813E-02	5.636E-02	4.083E-02	1.684E-02	6.950E-02	2.197E-03
5.474E-02	3.974E-02	2.615E-01	1.396E-00	2.897E-01	2.047E-03	6.783E-02	5.659E-02	4.091E-02	1.657E-02	6.921E-02	2.190E-03
4.823E-02	2.825E-02	2.613E-01	1.397E-00	2.897E-01	2.045E-03	6.680E-02	5.741E-02	4.230E-02	1.634E-02	6.828E-02	2.209E-03
3.859E-02	2.652E-02	2.610E-01	1.398E-00	2.897E-01	2.041E-03	6.341E-02	6.036E-02	5.070E-02	1.568E-02	6.554E-02	2.242E-03
3.219E-02	4.174E-01	2.606E-01	1.398E-00	2.897E-01	2.037E-03	6.021E-02	6.345E-02	5.850E-02	1.508E-02	6.305E-02	2.395E-03
2.514E-02	5.340E-01	2.604E-01	1.399E-00	2.897E-01	2.032E-03	5.724E-02	6.654E-02	5.828E-02</			

X(F7)	RS(F7)	WJ(M/SEC)	MWJ(M/SEC)	77J(R)	PTJ(P5F)	CPJ(8TU/8 R)	GAMJ	RHOJ(M/FT 3)	UJ(F7/SEC)		
5.2487E-01	9.4487E-02	1.0182E-01	2.8970E 01	5.3517E 02	3.4011E 03	2.3980E-01	1.4003E 00	9.2176E-02	9.4276E 02		
MJ(8TU/8)	TSJ(R)	750(R)	MO(8TU/8)	770(R)	P70(P5F)	CP0(8TU/8 R)	GAM0	RHO0(M/FT 3)	U0(F7/SEC)		
1.2790E 02	4.6119E 02	6.8510E 02	1.6722E 02	6.9865E 02	2.1911E 03	2.4150E-01	1.3962E 00	5.5984E-02	4.0430E 02		
R(F7)	C	CP(8TU/8 R)	GAM	MW	PS(P5F)	TS(R)	RHO(M/FT 3)	U(F7/SEC)	M(8TU/8)	77(R)	PT(P5F)
8.074E-02	5.750E-02	2.414E-01	1.396E 00	2.897E 01	2.045E 03	6.762E 02	5.672E-02	3.979E 02	1.650E 02	6.892E 02	2.188E 03
7.095E-02	3.896E-02	2.415E-01	1.396E 00	2.897E 01	2.047E 03	6.788E 02	5.654E-02	4.033E 02	1.657E 02	6.923E 02	2.193E 03
6.226E-02	2.670E-02	2.415E-01	1.396E 00	2.897E 01	2.047E 03	6.807E 02	5.638E-02	4.050E 02	1.662E 02	6.943E 02	2.194E 03
5.366E-02	6.835E-02	2.414E-01	1.397E 00	2.897E 01	2.046E 03	6.732E 02	5.699E-02	4.153E 02	1.645E 02	6.875E 02	2.203E 03
4.314E-02	2.089E-01	2.411E-01	1.397E 00	2.897E 01	2.042E 03	6.466E 02	5.922E-02	4.460E 02	1.590E 02	6.846E 02	2.249E 03
3.245E-02	4.026E-01	2.407E-01	1.398E 00	2.897E 01	2.037E 03	6.062E 02	6.321E-02	5.886E 02	1.514E 02	6.329E 02	2.398E 03
2.177E-02	5.608E-01	2.404E-01	1.399E 00	2.897E 01	2.030E 03	5.642E 02	6.746E-02	7.144E 02	1.452E 02	6.071E 02	2.624E 03
1.309E-02	6.672E-01	2.402E-01	1.399E 00	2.897E 01	2.025E 03	5.360E 02	7.085E-02	8.039E 02	1.410E 02	5.897E 02	2.830E 03
3.176E-03	7.266E-01	2.401E-01	1.400E 00	2.897E 01	2.022E 03	5.183E 02	7.314E-02	8.615E 02	1.387E 02	5.500E 02	2.998E 03
1.740E-04	7.297E-01	2.401E-01	1.400E 00	2.897E 01	2.021E 03	5.172E 02	7.328E-02	8.655E 02	1.385E 02	5.795E 02	3.010E 03
-2.992E-03	7.313E-01	2.401E-01	1.400E 00	2.897E 01	2.021E 03	5.171E 02	7.328E-02	8.640E 02	1.385E 02	5.792E 02	3.006E 03
-6.345E-03	7.198E-01	2.401E-01	1.400E 00	2.897E 01	2.022E 03	5.215E 02	7.269E-02	8.467E 02	1.389E 02	5.911E 02	2.953E 03
-1.543E-02	6.345E-01	2.402E-01	1.399E 00	2.897E 01	2.025E 03	5.451E 02	6.968E-02	7.731E 02	1.422E 02	5.947E 02	2.749E 03
-2.541E-02	5.156E-01	2.405E-01	1.399E 00	2.897E 01	2.033E 03	5.781E 02	6.593E-02	6.575E 02	1.468E 02	6.140E 02	2.511E 03
-3.451E-02	3.355E-01	2.408E-01	1.398E 00	2.897E 01	2.040E 03	6.213E 02	6.158E-02	5.225E 02	1.540E 02	6.439E 02	2.313E 03
-4.570E-02	1.566E-01	2.412E-01	1.397E 00	2.897E 01	2.044E 03	6.570E 02	5.834E-02	4.409E 02	1.611E 02	6.731E 02	2.224E 03
-5.516E-02	4.551E-02	2.415E-01	1.396E 00	2.897E 01	2.046E 03	6.774E 02	5.644E-02	4.049E 02	1.654E 02	6.912E 02	2.197E 03
-6.974E-02	1.911E-02	2.415E-01	1.396E 00	2.897E 01	2.045E 03	6.819E 02	5.624E-02	4.050E 02	1.665E 02	6.955E 02	2.192E 03
-7.620E-02	2.594E-02	2.415E-01	1.396E 00	2.897E 01	2.045E 03	6.808E 02	5.632E-02	4.052E 02	1.662E 02	6.944E 02	2.192E 03
-9.250E-02	7.281E-02	2.414E-01	1.397E 00	2.897E 01	2.044E 03	6.736E 02	5.690E-02	3.989E 02	1.644E 02	6.967E 02	2.188E 03
-1.098E-01	1.882E-01	2.412E-01	1.397E 00	2.897E 01	2.044E 03	6.597E 02	5.809E-02	3.722E 02	1.605E 02	6.712E 02	2.172E 03
-1.254E-01	2.702E-01	2.410E-01	1.398E 00	2.897E 01	2.044E 03	6.452E 02	5.940E-02	3.345E 02	1.565E 02	6.546E 02	2.150E 03
X(F7)	RS(F7)	WJ(M/SEC)	MWJ(M/SEC)	77J(R)	PTJ(P5F)	CPJ(8TU/8 R)	GAMJ	RHOJ(M/FT 3)	UJ(F7/SEC)		
5.9722E-01	1.0172E-01	1.0172E-01	2.8970E 01	5.3509E 02	3.4006E 03	2.3980E-01	1.4003E 00	9.2249E-02	9.4163E 02		
MJ(8TU/8)	TSJ(R)	750(R)	MO(8TU/8)	770(R)	P70(P5F)	CP0(8TU/8 R)	GAM0	RHO0(M/FT 3)	U0(F7/SEC)		
1.2789E 02	4.6127E 02	6.8444E 02	1.6722E 02	6.9860E 02	2.1917E 03	2.4159E-01	1.3962E 00	5.6001E-02	4.1399E 02		
R(F7)	C	CP(8TU/8 R)	GAM	MW	PS(P5F)	TS(R)	RHO(M/FT 3)	U(F7/SEC)	M(8TU/8)	77(R)	PT(P5F)
8.339E-02	1.093E-01	2.413E-01	1.397E 00	2.897E 01	2.044E 03	6.681E 02	5.737E-02	3.947E 02	1.630E 02	6.810E 02	2.186E 03
7.349E-02	6.662E-02	2.414E-01	1.397E 00	2.897E 01	2.045E 03	6.745E 02	5.656E-02	4.032E 02	1.646E 02	6.877E 02	2.190E 03
6.487E-02	5.547E-02	2.414E-01	1.396E 00	2.897E 01	2.045E 03	6.758E 02	5.675E-02	4.074E 02	1.650E 02	6.896E 02	2.194E 03
5.487E-02	9.807E-02	2.413E-01	1.397E 00	2.897E 01	2.044E 03	6.679E 02	5.739E-02	4.219E 02	1.634E 02	6.826E 02	2.207E 03
4.403E-02	1.890E-01	2.411E-01	1.397E 00	2.897E 01	2.042E 03	6.503E 02	5.957E-02	4.681E 02	1.599E 02	6.684E 02	2.249E 03
3.673E-02	3.265E-01	2.408E-01	1.395E 00	2.897E 01	2.035E 03	6.193E 02	6.169E-02	5.605E 02	1.544E 02	6.453E 02	2.355E 03
2.837E-02	4.534E-01	2.408E-01	1.398E 00	2.897E 01	2.033E 03	5.896E 02	6.468E-02	6.446E 02	1.494E 02	6.266E 02	2.489E 03
1.930E-02	5.452E-01	2.404E-01	1.399E 00	2.897E 01	2.029E 03	5.660E 02	6.721E-02	7.245E 02	1.455E 02	6.086E 02	2.631E 03
9.438E-03	5.315E-01	2.403E-01	1.399E 00	2.897E 01	2.025E 03	5.425E 02	6.998E-02	7.945E 02	1.424E 02	5.955E 02	2.807E 03
4.251E-03	6.393E-01	2.402E-01	1.399E 00	2.897E 01	2.024E 03	5.386E 02	7.346E-02	9.174E 02	1.420E 02	5.941E 02	2.894E 03
3.113E-03	6.555E-01	2.402E-01	1.399E 00	2.897E 01	2.023E 03	5.357E 02	7.052E-02	8.191E 02	1.414E 02	5.915E 02	2.862E 03
1.822E-04	6.587E-01	2.402E-01	1.399E 00	2.897E 01	2.023E 03	5.349E 02	7.093E-02	8.219E 02	1.413E 02	5.910E 02	2.870E 03
-2.952E-03	6.553E-01	2.402E-01	1.399E 00	2.897E 01	2.023E 03	5.355E 02	7.054E-02	8.209E 02	1.414E 02	5.916E 02	2.867E 03
-5.857E-03	6.419E-01	2.402E-01	1.399E 00	2.897E 01	2.024E 03	5.408E 02	7.017E-02	7.955E 02	1.423E 02	5.938E 02	2.808E 03
-1.514E-02	5.836E-01	2.403E-01	1.399E 00	2.897E 01	2.027E 03	5.581E 02	6.411E-02	7.379E 02	1.443E 02	6.033E 02	2.664E 03
-2.211E-02	5.176E-01	2.405E-01	1.399E 00	2.897E 01	2.032E 03	5.761E 02	6.066E-02	6.717E 02	1.469E 02	6.141E 02	2.533E 03
-3.275E-02	3.794E-01	2.407E-01	1.399E 00	2.897E 01	2.039E 03	6.105E 02	6.241E-02	5.821E 02	1.492E 02	6.367E 02	2.363E 03
-4.262E-02	2.364E-01	2.410E-01	1.397E 00	2.897E 01	2.043E 03	6.408E 02	5.978E-02	4.620E 02	1.579E 02	6.601E 02	2.267E 03
-5.361E-02	8.620E-02	2.414E-01	1.397E 00	2.897E 01	2.044E 03	6.701E 02	5.725E-02	4.186E 02	1.633E 02	6.866E 02	2.206E 03
-5.952E-02	4.003E-02	2.415E-01	1.396E 00	2.897E 01	2.046E 03	6.778E 02	5.650E-02	4.152E 02	1.656E 02	6.921E 02	2.202E 03
-6.690E-02	3.514E-02	2.415E-01	1.396E 00	2.897E 01	2.045E 03	6.785E 02	5.653E-02	4.176E 02	1.658E 02	6.929E 02	2.203E 03
-8.476E-02	9.213E-02	2.414E-01	1.397E 00	2.897E 01	2.043E 03	6.679E 02	5.734E-02	4.344E 02	1.636E 02	6.836E 02	2.217E 03
-1.018E-01	1.999E-01	2.411E-01	1.397E 00	2.897E 01	2.043E 03	6.531E 02	5.866E-02	4.171E 02	1.597E 02	6.675E 02	2.206E 03
-1.192E-01	2.929E-01	2.409E-01	1.399E 00	2.897E 01	2.043E 03	6.381E 02	6.004E-02	3.917E 02	1.557E 02	6.508E 02	2.190E 03

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13. ABSTRACT An experimental study of the turbulent mixing of subsonic axisymmetric gas streams was conducted. Hydrogen-air and air-air mixing systems were studied, and the velocity ratio (jet velocity/outer stream velocity) was varied from 2.4 to 6.3. Special emphasis is placed on (1) the centerline decay and radial profile shapes of composition, velocity, and total enthalpy and (2) the relationships between the turbulent transport of mass, momentum, and energy. The major conclusions drawn for this particular set of conditions are (1) for the hydrogen-air system the centerline decay decreases with increasing velocity ratio, (2) profile similarity of composition, velocity, and total enthalpy is a valid assumption, (3) there is a definite relationship between the transport of momentum and energy which is not compatible with a constant Prandtl number, and (4) unity Lewis number is a valid assumption. The experimental data obtained are tabulated for the benefit of other investigators.			

14. KEY WORDS	LINK A		LINK B		LINK C	
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